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MODERN CONCEPTS IN THE TREATMENT OF BURNS

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During the past 10 years significant advances have been made in the treatment of burns. Modern concepts of therapy are based on a more thorough understanding of the physiological derangements that occur after burning.

APPRAISAL OF THE BURNED PATIENT

The magnitude of injury is based upon two principal factors, extent of injury and depth of burn. The extent of burn is usually expressed as the percentage of the total body surface area. For many years, Berkow's table was used as a guide for estimating the percentage of body surface burned. A modification of this table by Tennison and Pulaski into the "rule of nines" has been employed recently (see figure).[1] For children, the extent of burn should be increased for the head and trunk and decreased for the extremities.

Burns are usually divided into three categories based on depth: first degree, second degree, and third degree. A first degree burn is characterized by erythema and involves only the outer layer of the epidermis. Healing usually occurs uneventfully in two to five days. It is sometimes very difficult for the most experienced surgeon to distinguish between second degree and third degree injury. Characteristic features of these two depths of burns are shown in table 1. Since the systemic derangements and prognosis are directly related to the amount of tissue destroyed, it is obvious that the full-thickness burn is more serious than a second degree burn of similar extent. It is difficult to assess the exact relation of severity of second degree to third degree burns. In a recent study of 323 hospitalized burned patients, Schwartz and co-workers [1a] have shown that the best correlation between case fatality rate and survival time can be achieved when the percentage of second degree injury is given one-half the weight, area for area, of the percentage of third degree injury. These investigators have suggested a burn index that is calculated by assessing one point for each per cent of third degree injury and one-half point for each per cent of second degree injury. This means that in a mixed burn with 30% third degree and 20% second degree injury the index is 30 plus one-half of 20, or 40. In this same series treated during the past four years, the case fatality rate was 50% for patients who had an index of 45. This simple index serves as a practical guide for severity of injury.

In appraising severity, other factors in addition to the extent and depth of the injury must be considered. Burns in some parts of the body are followed by such crippling defects that they should be regarded as serious even if they are of small extent. These areas of functional importance are the face, hands, feet, external genitals, and flexion creases. If the burn is complicated by a fracture or soft-tissue injury, it decreases considerably the chance of survival and increases the difficulties of treatment. The age and general physical condition of the patient before the burning accident also contribute to the seriousness of the injury. Greater risks are involved in infants and elderly adults. Patients who have renal, cardiovascular, or pulmonary diseases show poor tolerance for burns, even of minor extent. Burns of the respiratory tract are particularly serious, irrespective of the amount of surface area involved.

DISPOSITION OF THE BURNED PATIENT

For treatment purposes burned patients can be divided conveniently into three groups: (1) those with critical burns who should be referred to a well-equipped general hospital where a surgeon experienced in burn care is available, (2) those with moderate burns who may be treated in a small community hospital, and (3) those with minor burns who may be treated on an outpatient basis. Critical burns include: (1) burns complicated by respiratory tract injury; (2) partial-thickness burns of more than 30% of the body surface; (3) full-thickness burns of the face, hands, feet, genitals, or of more than 10% of the body surface; (4) burns complicated by fractures or major soft-tissue injury; and (5)

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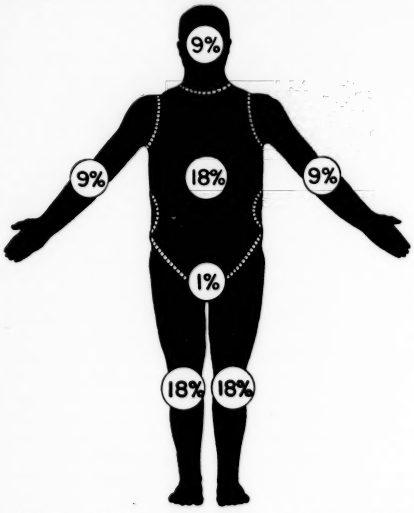
1. Blocker, T. G., Jr.: Burns, in Current Therapy, 1954, Conn, H. F., editor, Philadelphia, W. B. Saunders Co., 1954, pp. 821-826.

1a. Schwartz, M.; Soroff, H. S.; Reiss, E., and Artz, C. P.: Analysis of Mortality at the Surgical Research Unit, unpublished data.

electrical burns. Moderate burns include: (1) partial-thickness burns of 15 to 30% of the body surface, and (2) full-thickness burns of less than 10% of the body surface if the hands, face, feet, or genitals are not involved. Minor burns include partial-thickness burns of less than 15% of the body surface and full-thickness burns of less than 2% of the body surface for which the person may be treated as an outpatient and hospitalized later for minor grafting.

Treatment of Burns in Outpatients.—In minor burns, the injured surface should be cleansed with a mild soap and water; all blisters should be broken, and loose, devitalized epithelium should be removed. Masks should be worn by attendants, and an aseptic technique should be carried out. Minor burns of the face may be exposed. Burns of all other areas should be dressed. The burned surface should be covered with fine-mesh gauze, lightly impregnated with petrolatum; then a large, bulky, occlusive dressing should be applied. The affected parts should be bandaged in a position of function and immobilized. Prophylaxis against tetanus should be administered, and, in most instances, antibiotics should be given for three to five days. The dressings should be changed in 5 to 10 days.



Rule of nines: The body is divided into various segments, each representing 9% or multiples thereof. The head and each arm are given 9%; the anterior trunk, posterior trunk, and both lower extremities are given double 9, or 18%; and the genitals are given 1%.

Care of Hospitalized Burned Patients.—Patients with moderate or critical burns should be given emergency treatment and transported to a hospital immediately. If transportation requires less than one-half hour, the patient may be given a small dose of morphine intravenously and the burned areas covered with a clean sheet to prevent further contamination. If transportation requires a longer period, infusion of a plasma volume expander, or lactated Ringer's solution or dextrose in isotonic sodium chloride solution should be started. Patients may be transported several hundred miles by air during the first 24 hours without deleterious effects, providing fluid and electrolyte requirements are fulfilled in transit. Physiological derangements grow progressively worse after injury, so that burned patients do not tolerate prolonged transportation as well after 48 hours as they do during the first 24 hours.

Immediate Hospital Treatment.—General supportive care should take precedence over treatment of the local burn wound. Morphine may be indicated for pain. If it is used, it should be given intravenously in a dose of 8 to 10 mg. Severely burned patients frequently thrash about and are most uncooperative because of cerebral anoxia rather than pain. The immediate and rapid infusion of a sufficient amount of a plasma volume expander frequently transforms an unruly patient into a quiet and cooperative individual. In major burns of more than 25% of the body surface, a cannula should be inserted and a Foley catheter should be placed in the bladder. A cannula may provide a satisfactory portal for the infusion of fluids. In some severely burned patients, the insertion of a 14-gauge needle into the femoral vein will permit a segment of plastic tubing to be threaded through it into the inferior vena cava. After removal of the needle the tubing left in the vein provides an excellent means for constant infusion of large amounts of fluid. The segment of tubing should be carefully measured and its length recorded in order to be assured that all the tubing has been pulled out of the vein when the cannula is no longer needed. This plastic tubing should not be left in place more than 7 to 14 days because it might give rise to thrombosis and pulmonary emboli.

TABLE 1.—*Characteristic Features of Second and Third Degree Burns*

Characteristic	2d Degree	3d Degree
Etiology	Hot liquids, short flash	Flame
Color	Pink or mottled red	Pearly white or charred
Surface	Blisters or weeping	Dry
Sensitivity	Painful or hypesthetic	Anesthetic

In the event that respiratory damage is suspected, an immediate tracheotomy should be performed. This procedure should be carried out as soon as there is suspicion of tracheobronchial damage. To delay until there is positive evidence of respiratory difficulty may be too late. A tracheotomy should also be performed when there is a full-thickness burn of the face. Tetanus prophylaxis should be administered and antibiotic therapy instituted. During the first 48 hours, administration of one million units of penicillin and 1 gm. of streptomycin intravenously every 12 hours seems to provide excellent prophylaxis against infection. Therapy with penicillin and streptomycin may be continued intramuscularly after the first two days unless there is evidence that uncontrolled infection is developing. In such instances, one should use a broad-spectrum antibiotic, selected according to the sensitivity of the bacteria cultured from the wound surfaces or the blood stream.

SUPPORTIVE THERAPY

It is customary to think of a burn as a two-dimensional wound-involving area, rather than in terms of depth or volume. Burns are characterized by capillary damage. The third dimension of the burn wound or volume of tissues in which capillaries are functionally deranged is one of the most important factors in understanding replacement therapy. Edema follows burning because of vasodilatation and increased capillary permeability. Contrary to general belief, the visible surface losses constitute but a small fraction of the fluid lost from the effective circulation. Most of this fluid that is lost functionally is sequestrated beneath the burn wound. Third degree burns are even more misleading. They are characterized by a dry surface. The hard eschar may prevent obvious edema; nevertheless large volumes of fluid extravasate into the deep tissues.

Fluid and Electrolyte Therapy.—In general, burns in adults that involve less than 15% of the body surface require only a minimum of supportive therapy. Colloid solutions are not necessary, and fluid requirements are satisfactorily met by an orally given electrolyte solution. A well-refrigerated salt-soda solution containing 3 gm. of sodium chloride and 1.5 gm. of sodium bicarbonate per liter given orally is well tolerated by most patients. This solution is hypotonic and contains 70 mEq. of sodium per liter. Isotonic electrolyte solutions are unpalatable and poorly tolerated when administered orally.

Surface Area Formulas: Intravenous replacement therapy is required in more extensive burns. Several formulas have been devised by different clinics for estimating the amount of fluids required.[2] All the formulas seem to serve as useful guides because they offer an adequate amount of fluids, and the physicians using them should make variations according to the needs of each individual patient. A formula should be used to outline a plan of treatment and not as a strict guide for the exact amount of fluids to be administered. Some formulas consist almost entirely of colloids, and others favor a predominance of electrolytes. During the past four years, a middle-of-the-road formula has been used successfully by the Surgical Research Unit.[3] The colloids and electrolytes required are based on the weight of the patient and the percentage of body surface burned. The requirements for the first 24 hours are computed as follows: colloid, 0.5 cc. per kilogram of body weight for each per cent of body surface burned; electrolytes, 1.5 cc. per kilogram for each per cent of body surface burned; and approximately 2,000 cc. of glucose in water. Since the relationship between fluid requirements and percentage of burn is not linear throughout, the requirements for burns involving more than 50% of the body surface are calculated as though only 50% had been burned.

The requirements for colloids in second degree burns can easily be fulfilled by the use of virus-free plasma or a plasma volume expander, such as dextran. Whole blood is the colloid of choice in third degree burns. The electrolyte requirements are best fulfilled by the use of a balanced salt solution, such as lactated Ringer's, rather than glucose in 0.9% saline solution. Extensively burned patients have a tendency to develop a metabolic acidosis, and the increase in the chloride ion following infusion of 0.9% saline solution only tends to potentiate this acidosis. Since fluid losses are more rapid in the first few hours after injury, approximately one-half of the estimated requirements of fluids for the first 24 hours should be given in the first 8 hours. An increased amount of colloids may be required in patients who are first seen several hours after injury. In such patients, the rate of administration should be rather rapid in order that replacement therapy may catch up with fluid losses. In the second 24-hour period, requirements of colloids and electrolytes are approximately one-half those of the first 24 hours. In addition, the patient needs approximately 2,000 cc. of glucose in water.

After estimates of fluid therapy have been made by use of the formula, the final judgment as to rate and type of solutions administered should be based upon the clinical response of the patient. More rapid administration of fluids is required if the blood pressure is falling and the urinary output falls below 30 cc. per hour. It is not true, however, that the greater the flow of urine the better the therapy. Since fluid leaks from the vascular tree as it is infused, the interstitial space will be excessively expanded if sufficient quantities of fluid are given in order to maintain a urinary flow of more than 50 cc. per hour. If the urinary output exceeds 50 cc. per hour, the rate of infusion should be decreased. Patients who have respiratory involvement or elderly patients should be given minimal quantities of fluid. These patients should receive the smallest amount of fluid possible to insure an adequate renal filtration pressure. The serum sodium determinations may be of value during the second 24 hours. Therapy during this period should be continued with colloids, electrolytes, and water in quantities sufficient to maintain a satisfactory urinary output and a serum sodium level that does not exceed 140 mEq. per liter; a serum sodium level of 135 mEq. per liter is optimum.

Replacement After Forty-Eight Hours: After 48 hours, the patient with moderate burns is usually able to take food and fluids by mouth and will adjust his intake to his needs; however, in critically burned patients the real difficulties in fluid and electrolyte imbalances occur from the 3rd to the 12th day. During this period, the serum sodium level rather than urine output seems to be the best guide to therapy. An adequate amount of free water must be given intravenously to make sure that the serum sodium level does not rise to within the range of 150 to 160 mEq. per liter. Such an elevated serum sodium concentration means hypertonicity of the interstitial fluid. The hypertonicity of this fluid may withdraw water from the cells and lead to intracellular dehydration and death.

Resorption of edema fluid in extensively burned patients may require several days. During the prolonged

2. Evans, E. I., and others: Fluid and Electrolyte Requirements in Severe Burns, Ann. Surg. **135**: 804 (June) 1952. Barclay, T. L., and Wallace, A. B.: Management of Burns: II. Fluid Replacement in Burned Patients, Lancet **266**: 98 (Jan. 9) 1954. Cope, O., and Moore, F. D.: The Redistribution of Body Water and Fluid Therapy of the Burned Patient, Ann. Surg. **126**: 1010 (Dec.) 1947.

3. Reiss, E., and others: Fluid and Electrolyte Balance in Burns, J. A. M. A. **152**: 1309 (Aug. 1) 1953. Artz, C. P., and Reiss, E.: Calculator for Estimating Early Fluid Requirements in Burns, ibid. **155**: 1156 (July 24) 1954.

period of diuresis the insensible water loss appears to be in the magnitude of 1,500 to 2,000 cc. per day. During this period, when the sodium load that was given during the first 48 hours is being excreted, electrolyte-free water should be given in sufficient quantities to maintain a dilution of the serum sodium of about 135 mEq. per liter. If proper amounts of fluid are given in the first 48 to 72 hours, acute renal insufficiency rarely occurs except in overwhelming deep burns of some 70 to 80% of the body surface. After the first 48 hours, the hematocrit serves as a good guide to the adequacy of blood volume. Sufficient blood transfusions should be given to maintain a hematocrit of approximately 45%.

When food is not tolerated by mouth, administration of potassium should be started during the second or third day and continued until an oral dietary intake has been established. As long as a patient maintains a good urinary output, there should be little fear of overdosage with potassium. From 80 to 130 mEq. of potassium is a satisfactory intravenous daily requirement.

General Nutrition.—A tremendous loss of nitrogen occurs after a burn. In detailed metabolic balance studies of eight patients (average extent of burn 40%, of which 19% was full-thickness) Reiss and co-workers [4] found that the average duration of the catabolic phase was 33 days. The average daily nitrogen loss for this period was 25.6 gm. Although these patients were encouraged to take a maximum diet, the average daily intake was only 15.2 gm. of nitrogen and 3,000 calories. The average negative nitrogen balance during the catabolic period was 10.4 gm. per day, or a protein deficiency of approximately 65 gm. In spite of this tremendous negative nitrogen balance, the wounds healed well and skin grafts took well.

It is a common observation that burn wounds of individuals who were healthy previously seem to heal well even in the presence of a negative nitrogen balance for the first 30 to 40 days after the burn was incurred. Interference with wound healing does not seem to occur until a prolonged period after injury, at which time extreme depletion may well have occurred. Positive nitrogen balance in the burned patient can readily be achieved as soon as the wounds are healed. Extensively burned patients lose about 1 lb. (0.5 kg.) of weight per day during their period of catabolism. On the other hand, it is not uncommon to see a patient gain 1 lb. per day after the wounds have been closed and the patient is ambulatory.

The aim in the nutrition of burns should be to maintain a maximum intake of proteins, calories, and vitamins. This usually can be achieved by a high-protein, high-caloric diet that is supplemented by a between-meal high-protein liquid intake. In some patients, it may be necessary to insert a nasogastric tube and give a high-protein, high-caloric liquid feeding directly into the stomach. Intragastric tube feedings should be withheld until after the first week. Severely burned patients usually have a gastrointestinal atony for the first few days following injury and they do not tolerate tube feedings. Vomiting and aspiration are not uncommon complications of tube feedings shortly after a burn.

Contraindications for Hormone Therapy.—It is a common misconception that corticotropin (ACTH) and cortisone therapy for the acute burn will do little harm and may be of some general supportive value. There is ample evidence that the administration of corticotropin or cortisone diminishes the patient's resistance to infection.[5] There is no substantial evidence at present that this type of therapy is of any value except in rare instances where it is proved that adrenal insufficiency is present. There is evidence that the patient liberates enough adrenocortical hormone after the severe insult of a burn to make additional hormone therapy unnecessary.[6] Since infection is one of the chief problems in burns, it would seem that any type of medication that might decrease the patient's resistance to infection would be strongly contraindicated.

LOCAL CARE OF THE BURN WOUND

The primary aims of local care are the prevention and control of infection and the closure of the contaminated wound as soon as possible. After correction of the physiological derangements, attention may be directed toward the cleansing of the wound. Every effort should be made to minimize further contamination.

Initial Cleansing.—The patient should be taken to a clean dressing room or operating room where a strictly aseptic technique can be carried out. Usually analgesia induced by intravenously given morphine is sufficient, hence anesthesia with its further risks may be avoided. The cleansing technique produces considerable discomfort but little pain. The burned area should be cleansed thoroughly and all debris and detached epidermis should be removed.

Definitive Local Care: After the burn wound has been made as clean as possible, a decision must be made as to the type of definitive local care. There are two main techniques, exposure and occlusive dressings.[7] These two methods do not constitute two distinct schools of thought, but they are techniques that may be used to complement each other. Neither method is ideal; both have certain advantages and disadvantages. The occlusive dressing method is applicable to all areas, but exposure is not, because certain burns may be of such configuration that adequate exposure cannot be achieved. Under such circumstances, it may be wise to expose some areas and dress others in the same patient. One of the chief advantages of exposure seems to be a more effective control of infection. The warm, moist, dark environment beneath a dressing is conducive to bacterial reproduction. Deep dermal burns, treated by exposure, become dry and usually heal uneventfully, but when treated by dressings they may become infected and result in full-thickness injury. Exposure permits frequent observation of the wound and earlier detection of infection.

During the first 48 hours after exposure, patients have pain and complain of chilling; but they are quite comfortable after the protective covering has formed. Dis-

4. Reiss, E.; Soroff, H. S.; Pearson, E., and Artz, C. P.: The Metabolic Response to Burns, unpublished data.
5. Kass, E. H., and Finland, M.: The Role of Adrenal Steroids in Infection and Immunity, New England J. Med. **244**: 464 (March 29) 1951.
6. Wilson, H.; Lovelace, J. R., and Hardy, J. D.: The Adrenocortical Response to Extensive Burns in Man, Ann. Surg. **141**: 175 (Feb.) 1955.
7. Artz, C. P.; Reiss, E.; Davis, J. H., Jr., and Amspacher, W. H.: The Exposure Treatment of Burns, Ann. Surg. **137**: 456 (April) 1953.

comfort is minimized if drafts are avoided and if the ward is kept at an even temperature. When dressings are applied immediately after injury, there is freedom from pain and the patient is less likely to be uncomfortable. After a few days, however, the patient who has had his wounds dressed often develops a higher fever and complains of greater discomfort. Dressings permit better immobilization than exposure. The exact depth of the burn can usually be ascertained earlier when the dressing method is used than when the burn is exposed. This undoubtedly permits removal of the eschar a few days earlier. Since exposure is applicable only to burns and not to any other open wounds, the coexistence of soft tissue wounds and burns at the same site contraindicates exposure.

In the moderate-sized burn there is little difference in the nursing care required by either method. In very extensive burns, particularly when exposed patients must be turned on a Stryker frame, the nursing care of the exposed burn is increased considerably. On the other hand, exposure eliminates the necessity of frequent dressing changes by the physician. Undoubtedly one of the chief advantages of the exposure method that is rarely recognized is that frequent use of anesthetics and frequent dressing changes can be avoided. The detrimental effects of frequent anesthesia in a severely injured patient are well recognized. In major burns of 40 to 60% of the body surface, almost invariably an anesthetic is required for a dressing change. Dressing changes may be necessary at two-day or three-day intervals to keep the wound surface clean, dry, and free from suppuration. In such instances, frequent anesthesia is deleterious to the condition of an extensively burned patient. On the other hand, when exposure is used, no anesthetic is necessary until the eschar is finally removed. A better positioning of the hands and less edema is possible when a dressing is applied; however, after observing several patients who had one hand exposed and the other dressed, it was noted that patients usually prefer exposure because they really dread the pain associated with even the gentlest dressing change.

Almost all partial-thickness burns do extremely well when treated by exposure. This method is certainly preferred for burns of the face, burns of the perineum, and burns of one side of the body. The method of definitive local care should be selected for each particular patient in accordance with the surgeon's experience and the exigencies of the situation. Both methods yield excellent results when applied properly.

Exposure Technique: After initial cleansing of the burn wound, the patient may be placed in bed on clean, nonsterile sheets in the most comfortable position that adequately exposes the affected areas. The exudate of a partial-thickness burn dries in 48 to 72 hours and forms a hard crust that serves as a natural protective cover for the wound. During this time, small doses of a narcotic may be necessary. Epithelial regeneration proceeds beneath this crust and is usually complete in 14 to 21 days. In full-thickness burns there is dehydration of the pearly white or charred dead skin, and it is converted into a protective eschar in 48 to 72 hours after exposure. This eschar serves as a temporary physiological cover until liquefaction occurs beneath it in 14 to 21 days.

If cracks should occur in the eschar, the open area should be covered with a piece of moist, fine-mesh gauze in order that a new covering may form. If suppuration is spreading, the eschar must be removed and dressings should be applied. Treatment by exposure ends in partial-thickness burns when the protective covering falls off and complete healing has been achieved. In full-thickness burns, it ends when eschar removal has been accomplished; granulating surfaces should never be exposed.

Occlusive Dressing Technique: When Allen and Koch [8] introduced occlusive dressings in 1942, it was believed that firm mechanical pressure inhibited the amount of exudate that flowed from the wound and thereby decreased the fluid loss. In recent experiments there has been no evidence that such pressure decreases fluid losses; it only shifts the collection of fluid to the interstitial spaces proximal to the wound.[9] Dressings should be applied with even, resilient compression in such a way that there is elimination of dead spaces and a splinting effect. The initial layer should be gauze lightly impregnated with petrolatum, and the dressing should be bulky to provide maximum absorption.

The time for subsequent dressing change is regulated by the necessity for keeping the wound as clean as possible. In some partial-thickness burns, an adequate dressing can be left in place for 10 days, while in other burns the dressings may need to be changed as frequently as every other day. The dressings should be changed whenever there is undue malodor, increased pain, soaked dressings, or an unexplained elevation of temperature. The dressing change should be performed under sterile conditions, preferably in an operating room. Every effort should be made to eliminate anesthesia. Many dressings may be changed with the aid of analgesia induced with intravenously given morphine.

It is doubtful if an antibiotic ointment is of any appreciable value when applied initially to the burn wound. If local infection develops, however, a specific antibiotic ointment is indicated. The choice of antibiotics should be made according to the sensitivity of the bacteria found on the burned surface. Maximum benefits from antibiotic dressings can be achieved only when they are changed every two days, because antibiotics applied locally seem to be effective for only about 48 hours.[10]

Removal of Eschar and Grafting.—In burns of less than 5% of the body surface that can unquestionably be diagnosed as third degree, primary excision of the full-thickness injury and immediate application of a split-thickness skin graft may be carried out. On the other hand, in the case of large burns when the life of the patient is questionable and the availability of skin is scarce, the eschar should be allowed to remain in place until most of the surrounding partial-thickness burn has healed. This usually occurs about the 14th to the 21st

8. Allen, H. S., and Koch, S. L.: The Treatment of Patients with Severe Burns, Surg., Gynec. & Obst. **74**: 914 (May) 1942.

9. Rhinelander, F. W.; Langohr, J. L., and Cope, O.: Explorations into the Physiologic Basis for the Therapeutic Use of Restrictive Bandages in Thermal Trauma: Experimental Study, Arch. Surg. **59**: 1056 (Nov.) 1949.

10. Liedberg, N. C. F., and others: Infection in Burns: IV. Evaluation of Local Use of Chloramphenicol Ointment and Furacin Soluble Dressing on Granulating Surfaces Following Extensive Full Thickness Burns, Surg., Gynec. & Obst. **100**: 219 (Feb.) 1955.

day. In moderate-sized burns and in third degree burns of the hands or around joints, the areas may be excised earlier. In very extensive burns, removal of the eschar should be carried out with the least possible trauma to the patient. It may be necessary to wait until natural sequestration has occurred and a good granulating barrier has formed beneath the eschar. The aim should be to remove the eschar as soon as possible without jeopardizing the patient's chances for survival. After removing the eschar, a dressing should be applied and skin grafting should be performed as soon as the granulating surface is properly prepared. The use of large sheets of skin taken with the electric dermatome is a most expeditious way of covering large burned surfaces.

TABLE 2.—*Analysis of Fifty-Three Consecutive Burn Deaths, August, 1950, Through March, 1955*

Cause of Death	No. of Cases	Area Burned, %		Mean Day of Death
		Total	3d Degree	
Septicemia	30	57	37	20
Fluid imbalance	10	72	58	5
Acute pulmonary damage	4	42	29	0.7
Hepatitis (following plasma)	3	28	25	77
Bleeding duodenal ulcer	2	58	22	22
Bronchopneumonia	1	60	43	10
Congestive atelectasis	1	36	36	61
Cardiac arrest	1	45	40	87
Cerebral contusion	1	80	80	8

Exposure of Donor Sites: An accepted method for the management of donor sites is the use of occlusive dressings. As long as the wound is kept free from infection, healing occurs. Motion, mechanical trauma, and infection are the chief deterrents to proper healing. Bacterial proliferation is not uncommon under a dressing that becomes warm and moist. This is particularly true in hot, humid climates. In extensive burns, it is difficult to apply an occlusive dressing and isolate donor areas that are interspersed between infected granulating surfaces. Donor sites heal uneventfully in most instances if properly exposed.[11] Upon removal of the skin, the donor area should be covered with dry, fine-mesh gauze. A hot, moist gauze pad may be applied until hemostasis is achieved. The area is then exposed to the air, and within 24 hours a coagulum forms from the blood in the interstices of the fine-mesh gauze. This serves as a protective covering for the wound. Healing progresses beneath this coagulum, and the covering falls off in 14 to 20 days, leaving a well-epithelized surface.

Postmortem Homografts: When large areas require grafting, skin for autografts may not be available. In some debilitated patients, the removal of the patient's own skin may be contraindicated. Temporary closure of the wound by a homograft prevents infection and further deterioration of the patient by reducing the amount of fluid, electrolyte, and protein losses. The advantages of postmortem homografts over homografts from living donors are obvious.[12] Postmortem homografts may be removed from the body of a deceased person under aseptic conditions soon after death, preferably within the first six hours. After the skin is removed, it may be stored in a refrigerator at approximately 4 C for as long as seven to nine days. Disintegration of the homograft begins about the 21st day, and the average survival time is about 30 days. As the homografts disappear, they may be replaced with the patient's own skin until areas of full-thickness loss are covered.

TABLE 3.—*Data on Patients with Duodenal Ulcer Due to Burns, 1950-1955*

Case No.	Age	Area Burned, %		Day of Bleeding	Cause of Death	Septicemia Present	Day of Death	Location of Ulcer	Remarks
		Total	3d Degree						
1	28	85	60	None	Shock	No	4	Duodenum	Asymptomatic
2	27	72	20	19	Peritonitis	No	30	Duodenum	Gastrectomy; poor healing
3	30	60	55	None	Electrolyte imbalance	No	13	Duodenum	Asymptomatic
4	36	58	58	7	Hemorrhage	Yes	7	Unknown	No autopsy
5	22	45	25	10	Hemorrhage	No	13	Duodenum	.....
6	20	45	36	48	Peritonitis	Yes	65	Stomach	Two perforations
7	65	40	25	None	Septicemia	Yes	6	Duodenum	Asymptomatic
8	21	68	43	23	.....	Yes	..	Unknown	Massive hemorrhage; 3,500 cc. blood; recovered
9	37	23	17	16	.....	No	..	Unknown	Open fracture T-12; 3,000 cc. blood; recovered
10	22	35	15	12	.....	Yes	..	Unknown	3,000 cc. blood in 12 hr.; recovered
11	23	30	20	None	Septicemia	Yes	102	Duodenum and stomach	Perforation and abscess at autopsy
12	55	60	40	None	Septicemia	Yes	20	Duodenum	Asymptomatic

OUTSTANDING PROBLEMS IN MANAGEMENT OF BURNS

For many years, toxemia has been the term used to describe a syndrome associated with burns, characterized by disorientation, gastrointestinal atony, high fever, tachycardia, increased respiratory rate, diminishing urinary output, coma, and death. It has been postulated that this toxemia is the result of the absorption of a foreign protein from the dead tissue of the burned surface. In the past few years there has been evidence that this syndrome is directly associated with septicemia.[13] In reality, so-called toxemia of burns is often a septicemia.

11. Artz, C. P.; Bronwell, A. W., and Sako, Y.: Exposure Treatment of Donor Sites, Ann. Surg., to be published.

12. Brown, J. B., and Fryer, M. P.: Postmortem Homografts to Reduce Mortality in Extensive Burns: Early "Biological" Closure and Saving of Patients for Permanent Healing: Use in Mass Casualties and in National Disaster, J. A. M. A. **156**: 1163 (Nov. 20) 1954.

13. Liedberg, N. C. F.; Reiss, E., and Artz, C. P.: Infection in Burns: III. Septicemia, a Common Cause of Death, Surg., Gynec. & Obst. **99**: 151 (Aug.) 1954.

Septicemia.—In the management of more than 800 burns during the past five years at the Surgical Research Unit, there have been 53 deaths. The causes of death are outlined in table 2. The high incidence of septicemia, as proved by repeated positive blood cultures or by autopsy findings, attests to the predominance of this factor as a problem in burn therapy. As replacement therapy improves, a greater number of extensively burned patients survive the early period after injury but develop septicemia later. The route of entrance of the invading organisms is most likely through the extensively injured surface. At present, the aims in the treatment of septicemia are early skin coverage by autografts or postmortem homografts, optimal fluid and nutritional supportive therapy, and massive doses of antibiotics.

Duodenal Ulcer.—As a larger percentage of extensively burned patients survive because of improvements in supportive therapy, there appears to be an increase in the incidence of gastrointestinal ulcerations.[14] These acute ulcerations in the upper part of the gastrointestinal tract seem to follow the unusually severe stress in extensive burns. During the past five years, 12 patients were observed who had duodenal ulcer due to burns (Curling's ulcer) (table 3). Three of these patients survived massive gastrointestinal hemorrhage, and all evidences of ulcers disappeared upon improvement in general condition and coverage of the burned surface. These patients were treated with adequate blood replacement and antacid therapy. In the nine patients who died, four deaths were directly attributable to perforation or hemorrhage from the ulcer and five deaths occurred from other causes. The intense response of the body to an overwhelming burn may lead to the formation of acute gastrointestinal ulcerations.

SUMMARY

Modern concepts of burn therapy include time-honored surgical principles of supportive therapy, prevention of infection, and early closure of the wound. A better understanding of replacement therapy, particularly in the period after the first 48 hours, has led to an increased survival rate. Two techniques of local care, the exposure method and occlusive dressing method, complement each other in the treatment of the burn wound; the exposure method can also be applied in the management of donor sites. Postmortem homografts are of considerable value in the extensively burned patient, as they furnish a temporary cover for the large granulating surface. During the past five years, there have been 53 deaths among more than 800 hospitalized burned patients. Septicemia has been directly associated with 30 of these deaths. Duodenal ulcer due to burns (Curling's ulcer) has been present in 12 patients, 9 of whom died.

14. Weigel, A. E., and others: Gastrointestinal Ulcerations Complicating Burns: Report of 5 Cases and Review of 17 Cases Reported from 1942 to 1952, Surgery 34: 826 (Nov.) 1953.

BASIC PRINCIPLES IN MANAGEMENT OF OPEN FRACTURES

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An open wound communicating with a fracture site complicates management of the injury for several reasons. Blood loss may cause shock and seriously delay the definitive management of the wound and fracture. Loss of the hematoma from the fracture site may retard union of the fracture. Damage to the soft tissues may limit the eventual return of function of the part. The principal hazards of open fractures, however, are those of secondary infection and failure of healing of the wound and the fracture.

Infection of the wound may develop in several ways. There may be a true invasive infection of living tissue by bacteria, primarily or secondarily implanted in the wound. Invasive infections of which gas gangrene is an example usually take origin in dead and devitalized tissue in the wound. A second type of wound infection, much more common than true invasive bacterial infection, results from the bacterial decomposition of devitalized soft tissue and blood clot with resulting suppuration. The necrotizing enzymes in the pus thus formed cause further destruction of living soft tissue and bone that in turn leads to more suppuration in a vicious circle. In other instances, a true wound infection is not present in the beginning, but the loss of soft tissue or a gaping, open wound may leave bone, fascia, or tendon exposed. These tissues cannot survive if they remain exposed in a wound. They soon die and become the nidus for wound suppuration. The ultimate effect of an open wound in which these vulnerable tissues remain exposed, then, is really a wound infection beginning in dead tissue. A common denominator in all these wound infections is retained dead and devitalized tissue, truly the pabulum of sepsis.

OBJECTIVES

Basic objectives of the management of open fractures include the prevention or eradication of wound infection and healing of the fracture in good position without further death and loss of tissue. It readily follows that, to achieve these objectives, underlying factors leading to wound infection must be eliminated. The wound must be thoroughly débrided. The depths and recesses of the wound must be thoroughly cleaned of dirt, debris, and foreign material during the so-called contaminated period before active bacterial infection can develop. Contaminated dead and devitalized tissue, which actually includes old blood clots, must be surgically excised before it can be decomposed into pus. Then, those tissues that cannot survive if they

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remain exposed must be covered if surgically feasible with healthy, soft parts before they undergo necrosis.

Insofar as the management of a broken bone is concerned, the fragments must be placed and held in adequate apposition and alignment. Adequate reduction not only favors union of the fracture with minimal deformity but also is an additional measure against wound infection. A septic fracture is usually an unreduced fracture. With the fragments held in good position, dead space in which contaminated blood clot and wound exudate can collect is avoided, pressure of fragments against the underneath surface of the skin that might cause tissue necrosis does not occur, wound margins are more easily approximated without tension, and repeated traumatizing efforts at reduction are unnecessary. In these ways, reduction of the fracture inhibits wound infection.

BASIC PRINCIPLES

In seeking these objectives, the physician must handle open fractures as true surgical emergencies. These open fractures require prompt, thorough investigation, appraisal, and treatment in a fully equipped operating room and not merely a haphazard incomplete examination in an emergency room. With any systemic effects of hemorrhage or wound shock having been previously overcome and with adequate x-ray studies visualizing the entire length of the broken bone having been made, the part is surgically cleaned and prepared (soap and water preparation is all that is necessary, as antiseptics are not advisable) and the wound is thoroughly examined. As a rule, general or spinal anesthesia is necessary. An appraisal of the degree of contamination of the wound and the amount of damaged tissue probably remaining in it serves to determine the surgery that is indicated.

Wound Débridement.—In the technique of wound débridement, exposure of the depths of the wound must be ample. Inadequate exposure leads to inadequate débridement. As a rule, the wound must be extended in the direction that will afford adequate access to the depths of the wound and still facilitate closure by suture but at the same time avoid unnecessary exposure of tissues likely to die if they remain uncovered. In the extremities, incisions are usually parallel to the long axis of the limb. Circular skin incisions around the margins of a wound, the so-called wound circumcisions, are inexcusable. Incisions should not cross the center of a wound that runs in the opposite direction so as to create a crucial incision. When proximal and distal incisions from a transverse or circular wound are indicated, they should begin at opposite corners of the wound so as to leave, in effect, a Z-shaped incision. This kind of an incision is particularly advantageous in areas in which the skin is normally tight, such as over the anterior surface of the leg.

After an ample skin incision has been made, the dead and devitalized tissue must be excised. Healthy muscle is not discolored, bleeds freely, and contracts when pinched; muscle that does not meet these requirements warrants excision. Foreign bodies and dirt are removed. Thorough irrigation of the wound is a valuable cleansing method. Small fragments of cortical bone completely free of soft tissue attachment may be excised; fragments that have any soft tissue attachment at all should be carefully preserved. Sponging in the area of the fracture must be done with great care. Jagged fragments easily catch in the meshes of a sponge and may be avulsed from their soft tissue attachments when the sponge is removed from the wound.

Closure.—After the wound has been made as surgically clean as is technically possible, a decision concerning immediate suture must be made. Closure of the wound of an open fracture by suture at the proper time is highly desirable not only to minimize scar but to protect those tissues that are vulnerable to exposure and to avoid secondary contamination. The decision to suture the wound, however, must be based upon sound surgical judgment. Too much has been said about the immediate closure of wounds of open fractures so as to quickly convert each open into a closed fracture. Of course, an immediate successful suture of the wound is most advantageous but an unsuccessful suture because of abscess formation or necrosis of skin margins due to excessive tension is worse than if the wound had been left open to granulate to healing. The price of either of these complications is additional soft tissue necrosis that further retards and may prevent wound healing.

In surgery for civilians, suture of a clean, well-débrided wound of an open fracture is frequently feasible, particularly if the time lag after injury is not too prolonged (many wounds may be closed primarily up to 12 to 16 hours after injury), and closure is definitely and surgically feasible without excessive tension both at the time of closure and later after swelling of wound margins has occurred. On the other hand, if the surgeon cannot be certain that the wound is rid of the pabulum of sepsis or if closure by suture might lead to excessive tension on the skin margins, particularly after swelling has taken place, then an open wound is highly preferable despite its inherent hazards. A long, full-thickness, relaxing incision parallel to but several inches from the suture line is at times a valuable way of relieving excessive tension. If the decision is made to leave the wound open, delayed primary closure should be performed if surgically feasible between the fourth and seventh day, provided the wound is clinically clean. Delayed closure of clinically clean wounds is surgically sound, provided dead space is obliterated or dependently drained and excessive tension is avoided. The problem of surgical closure, primary or delayed, of an open wound of a fracture versus the advantages of an open wound for drainage as a safeguard against deep infection (including anaerobic infection) is one that may severely tax the judgment of even the most experienced surgeon.

COMMENT

Do all open fractures require wide open exposure and débridement as a safeguard against wound infection? Undoubtedly in many open fractures, usually those opened from within-out, the surgeon can be reasonably certain from the circumstances of the accident, the appearance of the wound, and the clothing about the site of injury that no foreign material has been carried into

the wound and that soft tissue damage is minimal. Under these circumstances, the factors discussed above that predispose to wound infection are probably not present. In such instances, the surgeon may elect to thoroughly irrigate the wound with sterile saline solution, suture the skin margins or merely apply a sterile dressing, reduce the fracture by closed methods, and apply immobilization. While such practices cannot be condemned, it is to be pointed out that they are a calculated risk. In the majority of open fractures, some débridement of the depths of the wound is definitely indicated. Insofar as the fracture is concerned, the same methods of management are applicable in general to open as to closed fractures. In open fractures, however, the question of employing internal fixation at the time of débridement of the wound often assumes paramount importance. As the wound is explored and cleaned, the fracture site often comes into view. If the contour of the fracture is such as to permit adequate stabilization by internal fixation, the decision regarding it must be made immediately. This, too, is a problem that requires expert decision.

As a practical matter, in well-débrided wounds that can be closed by suture or in which heavy masses of muscle tissue will fall over and protect bone and metal from exposure, there need be little hesitancy in applying internal fixation to the fracture through the open wound if internal fixation is otherwise indicated. Methods of internal fixation that require little or no periosteal stripping, such as intramedullary fixation or multiple screw fixation, appear highly preferable to plating. If, on the other hand, factors likely to lead to infection of the wound are present, internal fixation is probably too hazardous. In doubtful cases, it is advisable to employ some method of management of the fracture other than internal fixation and direct every effort toward obtaining early healing of the wound without infection. Then, if adequate reduction of the fracture has not been maintained, a delayed open reduction and internal fixation through a healed intact skin envelope may be performed. In this connection, however, it must be recognized that an adequately stabilized fracture in good position actually may favor rather than retard wound healing for reasons previously stated. Moreover, with the fracture stabilized in reduction, staged wound care if needed is possible without fear of loss of position.

159
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SUMMARY

The basic principles of the management of open fractures may be epitomized as: (1) proper first aid, such as sterile dressing and effective emergency splinting; (2) immediate correction of physiological deficits to make the patient operable; (3) prompt cleansing and débridement of the wound according to indications in a well-equipped operating room ready for any indicated surgery, not in an emergency room; (4) proper selection of the method of management for the fracture, including, on indications, the use of internal fixation with minimal periosteal stripping; (5) primary suture of the wound only when all factors are favorable, avoiding primary closure when an open wound is preferable as a safeguard against death of skin margins because of excessive tension or for drainage to prevent deep abscess formation, and delayed primary closure by suture (or skin grafts if indicated) of wounds left open if they are clinically clean a few days later; and (6) antibiotics (purposely not mentioned heretofore to place them in proper perspective) administered systemically to prevent invasive infection of living tissue by bacteria presumed to be present in every traumatic open wound. Systemically or locally administered antibiotics or their combination will not prevent the septic decomposition of dead and devitalized tissue in a wound and will not neutralize the necrotizing enzymes in undrained pus. They cannot be used as a substitute for thorough débridement of the wound of an open fracture.

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MANAGEMENT OF INJURIES TO THE THORAX

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Before discussing chest wounds, it is important to emphasize that in cases of major trauma there are usually multiple injuries. No standard textbook patterns are available for study. The surgeon accepting responsibility in the care of the badly injured patient must be versatile and confine neither his interests nor his treatment to one body cavity or region. In all major injuries certain basic factors must be considered and controlled: first, adequate circulating blood volume; and, of equal importance, pulmonary ventilation or open airways, which will result in satisfactory respiration and oxygen exchange.

SUCKING WOUNDS

If the pleura has been penetrated and a sucking wound of the chest produced, it is usually apparent. It is important to remember, however, that if there is any possibility of an opening into the pleural cavity the clothing should be removed, even under the worst conditions, to locate the defect. The importance of prompt closure of sucking wounds of the chest has been repeatedly emphasized. Large sucking wounds of the chest are more dangerous than small defects, but the immediate consequences will depend largely upon the vital capacity of the injured man. In elderly debilitated patients, a small wound may be fatal, whereas, in a young man with an excellent vital capacity, tolerations for amazingly large wounds are sometimes encountered. Closure of a sucking wound will depend upon the conditions and materials available. Occlusive dressings may be employed under emergency conditions. It is important to emphasize that the dressing should be placed over the wound and not packed into the pleura. Once operating room

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facilities are available, the wound should be débrided if necessary and closure accomplished.

Shock in thoracic wounds may be the result of either decreased circulating blood volume or impaired pulmonary ventilation and frequently a combination of both. The accepted treatment for shock after injury may be applied in patients with chest trauma, but it is important to emphasize that, if the trachea and major bronchi contain accumulations of blood or mucus, pulmonary ventilation may be seriously impaired. Removal of these secretions by catheter suction, bronchoscopy, or, in serious cases, through a tracheotomy tube, often results in the dramatic improvement in the patient's condition. In the initial evaluation of a patient with a serious chest wound it would be easy to overload the circulatory system in the treatment of shock, when improvement of pulmonary ventilation is all that is necessary.

ATELECTASIS

Complete or partial loss of the cough reflex caused by pain or shock may result in accumulations of blood and mucus in a bronchi, causing atelectasis. The lesions may vary from a complete atelectasis of an entire lung to the involvement of one or more pulmonary segments. Relief of pain, urging the patient to cough, and early ambulation are valuable preventive measures, and, if atelectasis is present, aspiration of the tracheobronchial tree must be done promptly. Sometimes the passage of a catheter into the trachea and application of suction will relieve the condition. Direct visualization through the bronchoscope may be necessary to remove the obstructing material. Massive hemorrhage into the lung or pulmonary edema may produce an extremely serious situation and is best treated by oxygen therapy after the tracheobronchial tree has been cleared. The physiological effects of shock with acute hemorrhage are characterized by fall in blood pressure, increased pulse, slow circulation, and loss of blood volume. If anoxia persists, increased capillary endothelial permeability, with tissue and pulmonary edema, eventually results in death if not corrected.

INJURIES TO THE CHEST WALL

Except in instances of extensive destruction to the chest wall, the most important immediate effect is pain and the associated splinting of the thorax with serious effects on the mechanics of respiration. In minor injuries to the chest wall, the application of adhesive to minimize respiratory excursions may be helpful. A 3 or 4 in. band of adhesive completely encircling the lower costal margin is the most efficient type of strapping. This results in partial immobilization of the entire bony thoracic cage, but it is dangerous in the seriously injured patient because vital capacity will be further reduced. The general use of regional nerve blocking for control of pain has practically eliminated the need for strapping the thorax after rib fractures. Procaine injected either at the site of the rib fracture or, preferably, by the paravertebral route is usually successful in controlling chest wall pain. Long-acting drugs with oil bases have been employed but may be dangerous and are not recommended. Recently, at the George Washington University Hospital School of Medicine experiments have been conducted with hydrocortisone; however, not enough experience has been gained to evaluate this agent.

Trauma to the anterior chest wall and sternum, common in automobile accidents, may result in multiple rib fractures, fracture of the sternum, and fracture of the posterior ribs or the transverse processes that act as fulcrums. This type of injury may cause serious and even fatal consequences. Moreover, after such a severe wound, there are usually associated visceral injuries. Various types of traction have been applied on the sternum to relieve this condition. Towel clips may be placed into the bone and traction applied to a frame with rubber bands or other mechanical methods.

The work of Carter and Giuseffi [1] on the importance of tracheostomy in severe chest wounds has practically eliminated the need for traction, except in extraordinarily severe instances of stove-in chests. The tracheostomy not only makes it easy to remove accumulated secretions from the trachea and bronchi but, more important, reduces the dead space of the upper airway by about 150 cc. An increase in tidal air for the critically ill or moribund patient, made possible by this technique, may be lifesaving. Finally, decreased resistance given by the tracheostomy tube will reduce the high negativity of the intrapleural pressures in the patient struggling for breath and relieve the flail action of the chest.

HEMORRHAGE, HEMOTHORAX, AND PNEUMOTHORAX

By far the most common source of hemorrhage in chest injuries is from the lungs, producing hemothorax. It is important, however, to remember the possibilities of bleeding from vessels in the chest wall. This may occur in either penetrating or nonpenetrating wounds. Bleeding from intercostal vessels in a nonpenetrating wound is extremely rare unless there are multiple severe rib fractures. Bleeding from the internal mammary arteries is almost always in connection with penetrating wounds. The points of entrance and exit of a missile or knife may give some clue concerning the source of bleeding from the chest wall. If there is reason to believe the internal mammary vessels have been injured, exploration should be undertaken unless the patient's general condition precludes any type of surgical intervention. Complete division of an intercostal vessel is usually followed by retraction of the ends of the vessel into muscle and stopping of bleeding. In instances of incomplete division, however, movements of respiration make clotting difficult and bleeding rarely ceases spontaneously.

Hemorrhage from the lung tissue may result from tears in either pulmonary arterial or venous systems. Since the pressures in the pulmonary system are low (in the order of 20 mm. Hg), fatal hemorrhage is uncommon except in extensive wounds involving major pulmonary vessels. In a great majority of serious thoracic wounds, hemothorax will be present. If there has been considerable loss of blood, in addition to the effects of the hemorrhage there will be respiratory embarassment caused by the partial collapse of the lung or lungs, and in extreme cases shift of the mediastinum. The need for emergency thoracentesis can usually be determined by clinical manifestations. Enough blood should be removed to relieve

1. Carter, B. N., and Giuseffi, J.: Tracheotomy, a Useful Procedure in Thoracic Surgery, with Particular Reference to Its Employment in Crushing Injuries of the Thorax, J. Thoracic Surg. **21**: 495, 1951.

dyspnea, and after the patient's condition is stabilized the systematic evacuation of the hemothorax must be undertaken. The blood should be evacuated early without air replacement so that the pleural space may be occupied by the reexpanded lung. Failure to observe these principles will often result in formation of a chronic hemothorax requiring open operation and decortication. Moreover, the entire pleural space in the untreated case of hemothorax becomes vulnerable to infection.

Small lacerations in lung parenchyma will often seal themselves and a tension pneumothorax will not develop. The seriousness and extent of the pneumothorax will depend, therefore, upon the size of the bronchi injured. If a ball valve action results at the site of the injury and air enters the pleura and cannot escape, a tension pneumothorax may be rapidly fatal. In emergency situations, aspiration with a syringe and needle should be carried out, and, if the pneumothorax persists, catheter drainage and the water seal attachment should be accomplished as soon as possible. If proper decompression is done even large defects will heal, usually spontaneously, and it is rarely necessary to perform an open thoracotomy for relief of pneumothorax.

FRACTURES OF TRACHEA OR BRONCHI AND EMPHYSEMA

The possibility of a fracture of a bronchus or even the trachea should be considered in all cases of severe pneumothorax associated with emphysema. The division of these structures may be complete or partial. Survival from this type of injury is more common in the young, since in older subjects associated injuries to the major vessels and viscera usually result in a fatal outcome. The following findings suggest the possibility of a fracture of a major bronchus: a tension pneumothorax with associated subcutaneous emphysema and mediastinal emphysema (there is often little or no evidence of associated fractures of ribs and a minimal hemothorax considering the gravity of the wound); and, finally, atelectasis of the lobe or lung in connection with the tension pneumothorax. After relief of the pneumothorax, with persistence of atelectasis of the lung or lobe, a tentative diagnosis of a fracture of a bronchus is justifiable and open operation should be performed as soon as the patient's condition will permit it.

Subcutaneous emphysema may result from penetration of the lung by fractured ribs or in patients with tension pneumothorax and injury to the chest wall, allowing the air to take the line of least resistance into the tissues of the chest wall and particularly the subcutaneous tissues. Dissection of air may continue into the neck, face, and sometimes over the entire body. Under these circumstances, the patient has an unpleasant appearance, but his life is rarely endangered and after several days or weeks the air will be absorbed. Emphysema becomes dangerous, however, if there is invasion of the mediastinum causing mediastinal tamponade. Voice changes and difficulty in swallowing are certain indications of severe mediastinal emphysema. Subcutaneous emphysema usually requires no treatment. If there has been a tear of a large bronchus or severe mediastinal emphysema is present, repair of the bronchus or trachea should be performed if the site of the injury can be reasonably localized. If this is not the case, and particularly if the patient's condition is precarious, a cervical mediastinotomy to allow some of the air to escape may be lifesaving.

WOUNDS OF THE HEART

Severe nonpenetrating wounds may injure the heart and cause bleeding into the pericardium. Usually, however, heart wounds amenable to surgery are the result of stab wounds caused by ice picks, knives, and other small weapons. Bullet wounds of the heart are almost always fatal, particularly the through and through variety. The possibility of cardiac damage should be considered in every patient with a wound near or over the heart. It is important to determine, if possible, the instrument that caused the wound, the length of the weapon, and the direction of the stab or missile.

The immediate consequence of heart wounds in patients who survive the original wound is the production of cardiac tamponade. Classic manifestations of cardiac tamponade are a weak, feeble pulse, decreased systolic blood pressure, increased venous pressure, and narrowing of the pulse pressure. Heart sounds are absent or diminished. A roentgenogram of the chest is not helpful, but examination with the fluoroscope will establish the extent of cardiac pulsation. Blood pressure, pulse pressure, and the pulse should be reviewed at 15 minute intervals in every patient in whom there is a possibility of cardiac damage.

It is important to emphasize that in patients with heart wounds there may be an initial period of shock and unconsciousness followed by a lucid interval. During this period the victim may give the impression of being intoxicated, and if he has been drinking it is easy to attribute his condition to alcoholism. As the tamponade increases, a second period of unconsciousness will occur, and, if blood is not removed from the pericardium, death will follow shortly. There are differences of opinion concerning the management of traumatic hemopericardium. Until rather recently, most surgeons insisted on immediate operation and suture of the wound. Blalock and Ravitch [2] have advocated initial aspiration of blood from the pericardium to relieve the tamponade and postpone open operation until it is evident that there is continued bleeding. Probably the choice of conservative or radical approach is not so important as the early recognition of the condition. Even if a conservative program of aspirating the pericardium once or twice before resorting to open operation is selected, preparation should always be made for thoracotomy and the aspirations performed in the operating room.

SUMMARY

The basic principles in the management of thoracic wounds consist of maintenance of adequate circulating blood volume and open airways to insure satisfactory pulmonary ventilation and oxygen exchange. The possibility of severe visceral injury in all patients having chest wounds must be considered and existence of such injury established or ruled out. Tracheostomy is an important adjunct in the management of all severe ventilatory and respiratory problems.

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2. Blalock, A., and Ravitch, M. M.: Consideration of Nonoperative Treatment of Cardiac Tamponade Resulting from Wounds of the Heart, Surgery **14**:157, 1943.

PRIMARY CARE OF INJURIES ABOUT THE FACE

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The primary care of acute injuries of the face usually falls to the lot of the general practitioner or to the hospital house staff on emergency room call except in industrial areas where traumatic surgery has become a specialty. The technique of repair of the majority of lacerations that do not involve actual loss of tissue can be acquired by any conscientious physician without formal specialized training, and beautiful cosmetic results may be obtained by adherence to a few basic reparative surgery principles. On the other hand, mistakes made through carelessness, ignorance, or haste often result in cicatricial and contour deformities that require secondary definitive procedures and can perhaps never be eradicated completely. The unfortunate results of using coarse suture material with big "bites" taking in the skin and deeper structures with each stitch; of wound disruption from hematoma formation; and of lop-sided faces, misplaced eyebrows, and crooked mouths and noses from lack of attention to the symmetry of the features and from failure to observe the anatomic pull of the tissues in motion are not uncommon.

The first consideration in patients with injuries of the head and neck should be the maintenance of an adequate airway. First-aid workers should be taught to keep them in an upright position or carry them prone on a stretcher. Foreign material should be removed from the mouth. A gauze pack applied to the face will control hemorrhage in the majority of instances; a Barton's bandage may be applied if the distance to a hospital is great. The use of a nasopharyngeal airway often obviates the necessity for performing a tracheotomy, but a set should be kept at hand for patients with extensive fractures, with injuries to the floor of the mouth and the neck, and with respiratory tract burns. While appropriate measures are in progress for the treatment of shock, hemostasis of major bleeding points should be obtained. An estimate should be made of concomitant injuries and a second surgical team provided if necessary and obtainable. Work on the face itself must be unhurried and deliberate.

Traumatic lesions are too often approached as surface lacerations with obligatory requirements for surgery. If they are considered first as diagnostic problems and evaluated according to the ultimate functional and cosmetic prospects, elective elements enter into the plan of repair. Conservative débridement and primary closure are important rules for injuries about the face even with war wounds and following other heavy contamination. For this reason, especially thorough mechanical cleansing with detergents and saline solution should be carried out after local or regional anesthesia. Antibiotics should be given immediately upon admission and for several days postoperatively, and tetanus inoculation must never be omitted. No antiseptics should be used in the wound itself. Clots, loose tissue, and débris should be flushed out, but only tissue that is definitely devitalized should be cut away. Small bone fragments in areas of comminuted fractures are left undisturbed if possible. If fascia is greatly involved, it should be incised in the direction of its fibers for the entire extent of the skin wound, and the involved portion should be removed. Decision with regard to muscle débridement may be made on the basis of its consistency, contractibility, and ability to bleed; studies made during the Korean war have shown that these tests are more reliable than color and apparent necrosis.

Examination of the face for concealed fractures may be made conveniently and accurately even in the presence of considerable edema by palpating for displacement on each side in three areas: first, around each orbital rim; second, along the lateral surface of the zygomatic arch and the superior border of the zygoma; and third, along the inferior border of the zygoma and the lateral surface of the maxillary sinus. If the underlying bones in these areas are symmetrical and intact, if there is no obvious deformity of the nose, and if the teeth are in occlusion, the examiner may rest assured that there are no major fractures of the face. Soft tissue wounds must be carefully examined at all depths for injury to major vessels and nerves; perforation into the oral, nasal, orbital, and sinus cavities; and damage to such structures as the parotid duct and nasolacrimal apparatus.

Often at first glance it is difficult to select a point of reference in suturing major lesions of the face. The eyebrow, which should never be shaved, the eyelids, the alas of the nose, and the vermilion border of the lips will serve as guides, and a few temporary tacking sutures may be inserted for preliminary orientation. These structures must be reconstructed carefully in both horizontal and vertical planes for restoration of the symmetry of the individual features and of the face as a whole.

To achieve minimal scarring it is necessary to eliminate dead space by accurate approximation of the tissues in layers and to close the deeper layers shorter than the superficial ones. Tension in the skin must be avoided by undermining in the area adjacent to the injury and by revision of the wound so that suture lines will fall in directions that are anatomically "correct." Linear contractures and notching in lacerations that fall across the normal wrinkles of the face or that cross the margins of the nose, lip, and eyelid may be prevented by staggering the closing incision. In the neck vertical lesions should be closed with a plastic relaxing operation to prevent scar hypertrophy or puckering. This technique, frequently employed in definitive reconstructive procedures, also may be used elsewhere when undermining alone does not achieve sufficient relaxation of the tissues along the central line of tension. Here two triangular flaps are outlined with a common side. The arms of the Z, or reversed Z, as the case may be, are usually placed at an angle of 60 degrees, and the flaps are transposed.

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195

The tips are blunted to avoid compromise of the circulation. Lesions of the cheek result in exposed scars unless they are situated close enough to the hairline, the lower eyelid, the jaw margin, the nose, or the nasolabial creases to be camouflaged in these locations. In the central portion of the cheek, however, zig-zagging of the suture lines will make it less noticeable, since all portions of the scar will not catch the light at once.

CARE OF VARIOUS FACIAL LESIONS

Fine suture material should be employed in lesions of the face, and the stitches should be placed close together. Our individual preference is for wire, which causes practically no tissue reaction. For the deep layers one or more removable continuous 36 wire is used and for the skin 000000 silk, with interrupted stitches placed so that the line of healing will be slightly raised. As a general routine we employ large, bulky dressings to maintain firm, even pressure for a period of three or four days. We begin to remove skin sutures in 48 hours but leave the pull-out wire in place for 7 to 10 days.

Avulsion Wounds.—In avulsion wounds, where skin and soft tissue have been lost, better definitive results will be obtained if raw surfaces can be eliminated by sewing of the skin to the mucous membrane, as in lesions about the mouth, cheek, and nose, by the use of a rotational flap; or by a temporary thick-split graft. Exposed bone should be covered by adjacent soft tissue, but on no account should closure be made over open sinuses unless adequate drainage into the nose can be accomplished or unless a portion of the upper alveolar process has been lost so that drainage occurs into the mouth. If it appears best to leave the wound open for secondary closure, a few deep sutures may be indicated to make the later problem less complex after induration of the tissues has occurred. At any rate, the wound should never be packed open with a mass of gauze so that drainage is obstructed.

Mouth Lesions.—In lesions about the mouth care must be taken to suture lacerations of the mucosa and to follow surgery with frequent irrigations and other measures to improve oral hygiene. If facial trauma has been extensive, patients should be fed by an indwelling plastic tube to give better immobilization of injured parts and to prevent the accumulation of food particles in the mouth.

Facial Burns.—Burns of the face should be treated by mechanical cleansing initially with débridement of loose shreds of tissue only. The exposure method of handling we believe to be the procedure of choice unless lacerations are also present. Dressings are absolutely contraindicated in the treatment of frostbite. Chemical burns of the eye require immediate priority over other types of injuries and must be washed as soon as possible with copious amounts of whatever innocuous fluid is at hand, followed by administration of local antibiotics and mydriatic drugs for pain. Phosphorus burns in the Korean war were treated by removal of particles of the chemical, neutralization with copper sulfate, and washing with saline solution. Patients with ocular injuries should be seen as soon as possible by an ophthalmologist, with the eyes bandaged meanwhile. If the injury is such that the cornea is exposed, the lid conjunctiva must be reconstructed to prevent permanent damage.

Suturing of Face Lacerations.—Every attempt should be made at primary suture of face lacerations within 4 hours after injury, or at least 12 hours. In considering the possibilities of mass casualties, in the event of nuclear warfare, it is obvious, nevertheless, that delayed closure would have to be carried out in the majority of instances. First priority in head and neck injuries would be given to coverage of exposed brain, eye injuries, respiratory obstruction, shock, and uncontrollable hemorrhage. Attempts should be made as soon as possible in facial trauma, after institution of shock measures, to cleanse wounds mechanically and to apply a few strategically placed sutures, matching tissues and effecting partial closure at least. Maxillofacial patients must not be allowed to lie on their backs meanwhile but should be sitting or lying with the face down or to the side.

Nose Fractures.—Fractures of the nose may usually be treated by molding and immobilization with an intranasal pack associated with an extranasal splint. If, however, the bridge has been driven back between the maxillas, forward traction must be applied, for which a pin through the nasal bones may be required. Simple malar depressions and depressions of the floor of the orbit may be approached through the mouth and kept in place by packing of the maxillary antrum for several days with iodoform or BIPP (bismuth iodoform paraffin paste) gauze. Depressions of the zygoma are reached through a small incision just inside the hairline, with a malar elevator passed between the temporal muscle and fascia. Fractures of the outer orbital rim may require direct wiring.

Jaw Fractures.—Fractures of the jaw should be treated initially by immobilization with simple devices employing elastic traction. If sufficient teeth are present, we prefer the Stout intramaxillary multiple-loop wiring with intermaxillary elastic bands for reduction and fixation. Other workers employ labial arch bars of metal or acrylic wired to the teeth in combination with intermaxillary elastic traction. During transportation and until early nausea and vomiting have subsided, only a few bands should be used, and rigid intermaxillary fixation should never be used during this period. For fractures in edentulous jaws intraoral splints of one type or another are applied. These, and the more complicated fractures of the mandible and maxilla involving extensive displacement or loss of bone, require as a rule the technical assistance of the maxillofacial or oral surgeon for definitive treatment.

SUMMARY

The proper primary care of facial injuries should follow certain general principles: (1) maintenance of adequate airway; (2) careful hemostasis; (3) diagnosis of injury to soft tissue and supportive structures; (4) prevention of infection by thorough mechanical cleansing and conservative débridement, systemic antibiotic and tetanus therapy, closure of "dead spaces," and prevention of hematoma formation; (5) accurate replacement of tissues by approximation in layers and by attention to the vertical and horizontal symmetry of the features and of the face as a whole; (6) minimal scarring by use of delicate suture material, undermining of the skin for re-

laxation in closure, revision of incisions as required to avoid contractures and notching and hypertrophy, and application of bulky pressure dressings to prevent excessive edema and provide immobilization; (7) elimination of raw surfaces in avulsion wounds in preparation for definitive surgery and partial closure whenever possible; and (8) simple primary reduction of uncomplicated fractures of the facial bones. The social, economic, and psychological implications of facial trauma are self-evident. Results obtained by careful attention to detail at the time of primary treatment are well worth the extra time and effort that these lesions require.

A PLAN TO MAKE AVAILABLE MORE BLOOD IN CASE OF WAR OR DISASTER

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Blood transfusion for the treatment of severe injury grew up and came of age in wartime, and methods of providing and using large quantities of stored blood for the care of mass casualties were painfully developed by the armed forces of the United States and other countries. In World War II the British Army established a transfusion service in support of their forces in North Africa, and the U. S. Army organized a similar service in Italy. Both of these systems were self-sufficient with regard to donors. It was not until 1944, after the invasion of northern Europe, that blood collected in the United States was flown into the combat zone. Meanwhile an important change had taken place: the surgeons in the combat zone had learned to use blood and to rely on it in the treatment of severely wounded battle casualties. In North Africa one unit of whole blood had been utilized for every 10 men wounded in action. By 1945 one unit was used for every two men wounded in action. The Korean War showed a further increase: one unit of whole blood was used for every man wounded in action. These, of course, are average figures: 80% of the wounded received no blood at all, and some men received as many as 50 units. In Korea blood was provided somewhat in excess of need, so that it was always available, and it was often administered where plasma or a substitute might have sufficed. Blood for the combat zone in Korea was obtained in the United States and to some extent from American troops in Japan. It was provided in unstinting amount. For the transfusion service, this was a lush time. We may never again "have it so good." Not only was the quantity adequate but the quality was first-rate. The blood was reasonably fresh, and its safety was guaranteed. This latter and eminently desirable characteristic was attained by making use of universal donor blood.

UNIVERSAL DONOR SYSTEM IN KOREAN WAR

The universal donor system has a great deal to commend it. The donors are all of group O; hence there are no A or B antigens on their red blood cells and they may be transfused without being hemolyzed by the recipient's anti-A (or anti-B) antibodies. The donor's plasma may be dangerous: the anti-A (or anti-B) antibodies, if present in high titer, may injure the red blood cells of group A (or AB and B) recipients, but this danger may be circumvented by eliminating from the universal donor transfusion service blood of all donors who have high titers of antibodies. This was done during the Korean war. It resulted in the elimination of 10 to 35% of our universal donors. In all probability, not all of those eliminated were dangerous universal donors, but, since there were ample donors, we could afford to screen out any who were even suspicious.

The determination of the blood group and the tests for safe universal donor blood were performed in laboratories in the United States and Tokyo, well away from the combat zone where the blood was to be used. All of the blood shipped into the combat zone was safe universal donor blood and, so far as A and B blood group antigens were concerned, was compatible with any recipient. Thus, the people in the field who used the blood were relieved of the responsibility of assuring that transfusions were compatible. Transfusions in the combat zone were begun without typing and cross matching, and there were no recorded incompatible transfusion reactions due to universal donor blood. This was an enormous advantage. Transfusions could be started instantly when a wounded man arrived, whether at a battalion aid station or a mobile surgical hospital. Skilled personnel and equipment for cross matching were not needed, and the probability of error under stress was eliminated. In practice, the universal donor system proved to be an extremely valuable expedient. However, it possesses one serious limitation. It is wasteful of the blood donor panel. It discards all of the blood of group A, B, and AB and that of group O considered dangerous universal donor blood by reason of the high titer of anti-A or anti-B antibodies. This blood of course is not discarded. It is diverted to the plasma program or used in hospitals where typing and cross matching can be done. But it is eliminated from the universal donor system, and this means that the system as it is presently defined can utilize only 30% of the donor panel (see table). This is not a serious limitation when a relatively small combat zone, as in Korea, can be supported by the population and transportation facilities of the United States. But were we to become involved in a larger war,

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The discussion was opened by Commander Mary Sproul and Dr. John G. Gibson.

or a war in several theaters, or a war involving the United States mainland, we could not afford to rely upon a transfusion service as prodigal as the present universal donor system.

DANGERS OF UNIVERSAL DONOR SYSTEM

Our department of hematology has had this problem under investigation for the past two and one-half years. Our first efforts were directed at the dangerous universal donor. It seemed preposterous that 35% of universal donors were dangerous as indicated by the screen em-

Utilization of the Donor Panel

Blood Group	Proportion of American Population *	Proportion Used in Universal Donor System	Proportion Used in Modified System
O	45	30 †	45
A	41	"	41
B	10	"	"
AB	4	"	"
Total	100	30	86

* Snyder, L. H.: Blood Grouping in Relation to Clinical and Legal Medicine, Baltimore, Williams & Wilkins Company, 1929.
† 65% of group O are safe universal donors.

ployed to identify them. This screen consisted of diluting the donor's serum 1:200 or 1:250 with saline and adding a mixture of group A and B red blood cells. If agglutination occurred, the blood was considered to be dangerous. Experience has demonstrated that this test eliminates dangerous universal donors, but it undoubtedly errs on the side of caution and thereby eliminates a number of safe donors as well. The saline agglutinins, upon which this test is based, are not the dangerous antibodies and therefore there remained a possibility that a dangerous universal donor might slip through the screen. A survey of 85 donors selected at random from a military population confirmed this (see figure). There were donors with low titers of saline agglutinins and high titers of hemolysins and incomplete (albumin) antibodies, which are believed to be the pathogenic ones. But in spite of these apparent loopholes the system in practice proved safe.[1]

Transfusion experiments, using dangerous plasmas, have suggested that there may exist a further dimension of this problem. The dangerous plasmas may provoke severe transfusion reactions only in certain susceptible recipients. These dangerous recipients may be few in number; if it is so, this unappreciated circumstance may have been an important factor in mitigating the dangers of the universal donor system.

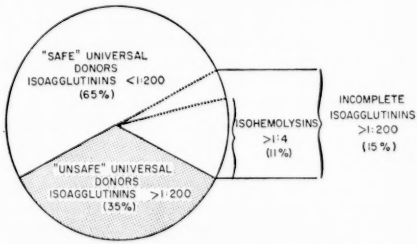
Efforts to find a more selective screening test for universal donors have not been rewarding. Because of the difficulty in identifying dangerous donors by means of plasma transfusions, we have not been able to define them. Efforts to devise other screening tests that would identify high titers of hemolysins or incomplete antibodies have bogged down in techniques that would be unwieldy when applied to the testing of hundreds of units of blood. At the present time, we are unable to suggest any practical means whereby the number of safe universal donors might be increased, unless it be to use Witebsky's soluble blood group specific A and B substance in all blood collected for use in the combat zone. This proposal is under study at the present time.

MODIFICATION OF SYSTEM

Even if we were able to use all universal donors, such a transfusion service would take only 45% of the donor panel and would discard 55%. To find a way out of this unprofitable situation, we have proposed a modification of the universal donor system itself. This suggestion is based upon a plan put to use by Zeitlin in one of the emergency obstetric transfusion services in London.[2] By employing a single blood-typing procedure, this plan permits the use of all group O blood and all group A blood, or more than 85% of the donor panel (see table). The blood of every recipient is mixed with potent anti-A serum. Agglutination of the red blood cells indicates the presence of the A antigen and means that the recipient is of group A or AB. He would receive group A blood. Failure to agglutinate indicates the absence of A antigen. Such a recipient is of group B or group O and would receive group O blood. No further typing or cross matching would be carried out before transfusion was begun. The following statement indicates that a plan similar to that proposed here has been under consideration by the Federal Civil Defense Administration; it differs in that cross matching is stipulated by the Federal Civil Defense Administration.

Group-Specific Transfusions. Only blood of group O can be given without crossmatch, and this is strictly an emergency procedure. Transfusions of unmatched group O blood should be abandoned as soon as conditions permit to conserve blood for group O recipients. Donor blood of the other groups must always be crossmatched with blood from the recipient before administration.

Donor blood of the recipient's blood group should be selected and the two should be carefully crossmatched with a technique which will reveal both blood group and Rh incompatibilities.



Distribution of isoantibodies in 81 universal donors.

Although Rh negative blood can be given safely to Rh positive persons, the supply will be limited and should be reserved for Rh negative patients.

During the transitional phase, and when limited blood grouping and matching facilities are becoming available, it may be desirable as a first step to expand collection of blood to include group A in addition to group O donors. Group O blood can then be crossmatched for group O and group B recipients, and group A blood for group A and AB recipients. It is important that the major side of the crossmatch (donor cells and recipient serum) be double-checked for compatibility when cells of different groups are matched.[3]

1. Crosby, W. H., and Akeroyd, J. H.: Some Immunohematologic Results of Large Transfusions of Group O Blood in Recipients of Other Blood Groups: A Study of Battle Casualties in Korea, Blood **9**: 103, 1954.
2. Zeitlin, R. A.: Safer Emergency Blood-Transfusion, Lancet **1**: 23, 1954.
3. U. S. Civil Defense: Blood and Blood Derivatives Program, revised edition, Federal Civil Defense Administration, 1953, p. 159.

IMPORTANT PRECAUTIONS FOR NEW SYSTEM

The plan considered here is not without certain soft spots, and we must be certain that these areas of concern are not unreasonably dangerous. Recipients in group B would still be threatened by dangerous levels of anti-B in the plasma of group O blood, just as recipients in group AB would be threatened by the anti-B in the plasma of A blood. It seems fairly clear that the anti-B problem is not nearly so dangerous as anti-A, and it may be diminished to insignificance by the use of blood group specific substances. The anti-A typing serum must be avid, accurate, and exceptionally rapid. It must be able to distinguish weakly reacting A's quickly and unmistakably. Agglutination must develop within a matter of seconds so that harried technicians will not be tempted to set the test aside for later reading. Dr. L. K. Diamond and Dr. Ernest Witebsky have assured us that such serums have been developed and adequate amounts can be produced. Field trials of these serums are under way at the present time.

Perhaps the most critical factor is the ability of the personnel who must administer the blood. During the Korean war, the universal donor system required little or no knowledge of blood transfusion where one sort of blood was used for all recipients. Most of the transfusion reactions that were recorded in Korea occurred when attempts were made to use cross matched blood that was locally procured.[4] The proposed modification requires no high level of skill, but it certainly requires a high level of conscientiousness and a lively knowledge of the dangers and disastrous consequences of error. The personnel of the transfusion service must know how to perform the anti-A test. They must know how to interpret it. They must be certain that it is always a person with A antigen in his red blood cells who receives A blood. This will require a higher level of training and awareness in the personnel of the transfusion service at the level of the mobile surgical hospital.

With regard to the training of these personnel, we are convinced that we should set our sights even higher than the requirement of this modified universal donor system. If ground warfare in future wars is more open, more insular, there well may be times when the mobile surgical hospital or its equivalent must procure its own blood. The level of training of the transfusion team should permit this with a reasonable assurance of its safety. Training schedules to meet these requirements have been constructed and the training cycle has actually been completed on "guinea pigs" at the Army Medical Service Graduate School. It is hoped that within the year we may be able to submit the system to a complete field trial during one of the large-scale maneuvers.

The surgeon general of the Army has sought the advice of the National Research Council concerning this modification of the transfusion service in the combat zone. The matter was referred to the Subcommittee on Blood and Related Problems, which gave the proposal a qualified approval and encouraged further study in the field. During the discussion, Dr. L. K. Diamond stated that the planners for civilian defense in the Boston area had been scrutinizing this scheme for some years. He said that, should war come to the United States mainland, the civilian medical support of disaster areas must use an emergency transfusion service of the universal donor variety, not limited to the 30% of safe universal donor blood. "There may be disadvantages to the device of anti-A testing, but there is no other way."

SUMMARY

Review of the universal donor blood transfusion system as it was employed in World War II and the Korean war reveals that the chief disadvantage is that it utilizes only 25% of the available donor panel, a limiting factor that would seriously impede the transfusion service in any large-scale war or civilian disaster. A modification that would permit the use of all group O and all group A blood, or 85% of the donor panel, also has certain limitations that seem not impossible to overcome. Through the cooperation of military and civilian investigators, the obstacles to this modified universal donor transfusion system may soon be reduced.

4. Crosby, W. H.: The Safety of Blood Transfusion in the Treatment of Mass Casualties, Military Med., to be published.

Explosive Risks in Surgery.—Explosive risks associated with surgery can be divided into four groups: the presence of inflammable anesthetic gases or vapours; eructation by patients suffering from pyloric stenosis; collections of gas in the lower bowel; and the generation of inflammable gases during electro-coagulation or diathermy of the body tissues. Taking this last risk first, it has been proved that the gases given off when high-frequency currents are applied through a fine electrode to body tissues contain acetylene, ethylene, carbon monoxide, and hydrogen in varying quantities. Fortunately these are usually ignited as they are formed and their combusion contributes largely towards the spluttering associated with diathermy. If, however, they collect in a confined space such as the mouth, rectum or bladder, they may accumulate sufficiently to form an explosive mixture. This undoubtedly is the cause of those occasional pops heard during fulguration of bladder growths, for the gases cannot escape and rise to mix with the air bubble and, upon occasion, the electrode may set up a spark near them and cause a mild and muffled explosion. Similar types of explosions have occurred in the mouth while using diathermy upon the tongue in cases where no inflammable anesthetic was in use. It is not beyond the realms of possibility therefore that diathermy gases could accumulate within the lumen of a sigmoidoscope and, mixing with the air within that instrument, be ignited by a spark caused when next the diathermy was used . . . Normally there is little oxygen within the bowels to support combustion, but when peristalsis is brisk, as it is with some anaesthetics (particularly spinal anaesthesia) swallowed air or oxygen from an anaesthetic mixture or oxygen excreted into the lumen of the bowel from the blood stream, may reach the rectum in less than thirty minutes. When operating through a speculum or sigmoidoscope, of course, air is admitted to the lumen of the instrument and will be present to support combustion if suitable ignition is supplied. Several cases of explosions during minor procedures within the large bowel have been reported . . . . As an anaesthetist I should like to draw attention to the fact that none of the reported cases was receiving an inhalation anaesthetic . . . . Several suggestions have been made regarding the avoidance of such accidents . . . . The diet should be regulated for some days with a view to avoiding meteorism . . . . Smoke for electrodissection should be cleared in some way in case it accumulates and forms an explosive mixture with air introduced through the operating endoscope. The best suggestion which has been put forward is that a steady flow of some inert gas should be introduced to the far end of the endoscope through a fine catheter, so that any gases introduced from the bowel are steadily swept out of the instrument. In addition this will also displace any air which might otherwise support combustion.—A. H. Galley, M.D., Explosive Risks in Large Bowel Surgery, *Proceedings of the Royal Society of Medicine*, July, 1955.

PSYCHOLOGICAL REACTIONS IN MASS CASUALTIES

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Americans rarely panic as a result of a major disaster. It is realized that this statement has been made on a number of occasions by individuals of varying prominence in the field of disaster research and is again made here, as always, without substantial support. In like manner, it has been repeatedly implied that Americans are more likely to turn to tremendous reserves of courage, generosity, and heroism in times of disaster than to panic. Such statements are indeed comforting and encouraging and possibly true but, unfortunately, are based on studies involving isolated incidents such as tornadoes, air crashes, large fires, and alarming radio broadcasts, which fail to reveal the entire situation. The condition for studying the reactions of the American people during a disaster, as that arising from an atomic attack, has never presented itself—we trust that such will never be. Tentatively, the conclusion is that the American performs much better when confronted with a specific situation than in anticipation of an abstract future event; that regardless of how emotionally shocking the situation may be, if he has something to do rather than to contemplate, his actions are much more likely to be controlled and purposeful.

Not too much reliance can be placed on the numerous attempts through psychological theory to predict with any degree of accuracy what will happen in the event of an atomic disaster and how we, as Americans, will respond. Dynamic psychology is a very young and incomplete science and is easily strained beyond its limited control of information as to what is taking place in an atmosphere of situationally rather than neurotically aroused anxiety. Our shores and homeland have never been invaded by the devastating weapons of modern war. We know something of the psychological reaction of the American male in stressful situations, even those caused by the horrible destruction of atomic and thermonuclear weapons with the resulting mass casualties—but only as he reacts to them on foreign shores, not in his own backyard. What the actual effect would be upon the civilian population in the event of a sudden atomic attack is open to considerable speculation. In all probability there would be widespread panic, the degree depending entirely on the state of preparedness of the civilian population.

APPROACHES TO PREPAREDNESS

Preparedness embraces two principal themes of approach; the first is that of mental health as it affects the individual as well as the group and is by necessity a long-range educational undertaking. It is generally accepted that stress accruing from threatening situations is based largely on the way the affected person perceives it and depends on many factors, including the individual's genetic equipment, basic needs and longings, earlier conditioning influences, and a multitude of life experiences and cultural pressures.[1] The second theme of approach is that of civil defense, which involves a host of undertakings. These two themes in disaster preparedness are uniquely capable of greatly aiding and benefiting each other in accomplishing their respective tremendous tasks in the years ahead.

Much has been written on civil defense during recent years, and the degree of attention paid to these writings varies with the perceived imminence of attack. The word apathy is appearing with more frequency in reports on current civil defense programs.[2] Since civil defense is geared to hazards of war, it is difficult to maintain the interest of the citizenry in projected situations of a "tomorrow" that never comes. The existence of this state of affairs is of much concern to those in positions of responsibility for safeguarding the civilian population. It has been suggested that by giving serious consideration to certain concepts relating to mental health in its current enthusiastic nationwide program, the civil defense program may, in turn, be brought more in line with daily living experiences.[3] Preparedness for the emotional aspects of disaster is of the same long-range pattern as is the preparedness for the inevitable crisis of everyday living. The community that has a well-organized mental health program in its schools, churches, and other activities is struggling to combat obstinancy and lessen tensions. There is a sinister relationship between the mental health problems involving present-day living and the psycological tensions being created throughout the world by dictatorships. Hoffman [4] states: ". . . To most of us war's aim and end is victory on the field. But to the Kremlin military action is but the most visible and spectacular zone of combat in an unremitting war against the free world. Herein lies our strange and new and often hidden danger—a danger that we cannot fend off by arms alone. We must know that for the Kremlin the military is only one of four fronts—each a battleground of implacable attack. These four fronts are the military, economic, political, and psychological."

In civil defense preparedness there are certain long-range psychological goals that must be emphasized in addition to the acute emergency phases. Communities with well-operating mental health programs are better prepared to accept sudden change and emotional shock than the ones that do not have them; thus, an interest in and forwarding of the existing mental health activity of a community is an imperative prerequisite of a civil defense program that takes into consideration the emo-

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4. Hoffman, P. G.: Peace Can Be Won, Garden City, N. Y., Doubleday & Company, Inc., 1951, p. 93.

tional needs of people during a disaster.[5] In addition, such a procedure is a means of maintaining the interest of the citizenry in civil defense activity, in that the mental health program is directly involved with human interest events of daily living.

The nation, today, is called upon to play a vast number of unfamiliar roles and to create strange new parts for practically everyone. The American people are not accustomed to the ever-present possibility of being attacked on their homeland nor to being continuously involved in defensive and offensive alliances. The Americans do not know how to deal with their own power, nor how to appraise their own insecurity, much less to feel comfortable in the role of being constantly held responsible for the preservation of world peace.[6] Whether they are appropriately used or inappropriately used, adaptive and protective mechanisms operate only in relation to the present, in a manner determined by the past, and often with dangerous consequences for the future.[7] Psychological teaching of recent years has frequently pointed out that the studies of man as a growing, living, and social organism are producing a wealth of information that may bring about changes not only in the condition of human life but also in the social and personal characteristics of the individual himself. Such a situation has never been closer to reality than in this atomic era.

A well-organized disaster plan should not include the technique of crying havoc as an incentive to rational thinking. Culturally engendered anxiety and the methods of resolution become formalized, and it is quite possible the anxiety and tension ceases to be operative long before the tension-producing factors lose their potency. Still, there is probably too much emphasis on "panic" as a magic word.[8] It is unlikely that the American people would ever be frightened into a better state of preparedness, even though it is quite possible that casualties may be greater by reason of panic than as a result of the disaster itself. A population that is well-prepared, and has good morale and leadership, will still have a large percentage of the people temporarily overcome by fear. The degree and duration of that fear, as well as the prevention of mass panic itself, will depend in large measure on the level of mental health and efficiency of the civil defense system. The basic and foremost objective of that system is to establish within the American people, with assuredness, the desire and capacity to remain calm and orderly in the face of atomic catastrophy.

The fact that we cannot foretell what would be the psychological reactions of the American people in case of an atomic disaster is all the more reason intensive research and study should be continued in this realm. We might well approach this particular subject as we do the buying of fire insurance on our homes—hoping we will never need it, but fearing that we might! Whatever might be contributed toward psychological preparation for a major disaster is just that additional fire-fighting equipment and fire insurance at a lower premium.

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UNDERSTANDING HUMAN EMOTIONS

Many of us are making it our common cause to understand more completely the nature of human emotions and emotional disorders as they are found in mental health and mental illness in the various economic, social, and occupational classes. Tyhurst [9] has pointed out the importance of determining how these classes of Americans would react to situations of community disaster and personal stress. To do this, we must come to a more common basis of understanding as to methodology and aims. There are certain fundamental and puzzling questions that concern us [7] such as: what is the nature of the so-called psychic trauma; what mechanisms can the neurophysiologist, the endocrinologist, and the experimental biologist discover to account for the residuals of intolerable stress imposed upon the immature organism, remaining as scars upon the personality perhaps for the duration of life; and how is it possible for the mother to shield her offspring effectively against these otherwise mentally injurious environmental stresses?

From their beginning, the two traditions of research originating in the classic studies of Cannon and Pavlov on the one hand, and of Freud on the other, have converged upon the same fundamental problem; namely, the fundamental significance of emotion. This is of considerable concern in facing the problem of the meaning of operational psychic trauma. This physiological tradition of Cannon and this psychodynamic tradition of Freud will eventually coalesce in spite of the well-known inertia and conservatism of thinking peculiar to the life sciences. This merger will be hastened when it is recognized that between the organic position and the psychodynamic position, there is another distinct viewpoint—the behavioral or biological position, which, apparently, is steadily gaining in importance.[7]

EFFECTS OF STRESS AND REACTIONS TO IT

Since Cannon's classic studies of the cat's emergency reaction to various stresses, much has appeared in the literature on the physiology of stress. It is not difficult to impose so-called controlled stress upon an organism in the laboratory, but it is extremely difficult or impossible to do so out of the laboratory. When such controlled stress is imposed, however, it is of logical necessity to pursue the organism into its normal living conditions, if the effect of the stress is to be determined for the total biological unit and not just for the isolated organ.

Repeated studies of stress and its effects on human beings have failed consistently to bring forth a satisfactory answer to the much sought-after question of why certain individuals withstand and others succumb to a stressful situation. In the laboratory the stressors commonly employed are such as may most easily be controlled and reproduced; for example, cold, treadmill exercise, electric shock. It is supposed that the organism, reacting as a computing machine, calculates the sum of stressors and reacts to the appropriate intensity. Such a built-in calculator, however, is not present in stressful

situations beyond laboratory control, as in actual combat or an atomic disaster. It is then that the inborn instinct of self-preservation comes forth and assumes such duties, the action of which is unique to each individual.

Training and cultural backgrounds develop in an individual relatively fixed ideas of how he is expected to appear, behave, react, and even feel. A person's reactions to what he perceives as dangerous are often out of keeping with his "ideas" of what he "ought" to do.[1] When he is stunned and bewildered, each individual reacts differently to trauma or sudden change in environment.[10] As to the nature of the so-called psychic trauma, it might be considered an injury, wound, shock, or resulting condition. The trauma might well be that which results from the sudden and unexpected bombing of a city. When in an unbearable situation to which the individual is unable to adjust temporarily, he might possibly react by panic. The dangerous situation and the subsequent conflict, which is at best only partly conscious, evokes unwittingly within the person an unsuitable protective reaction. Some will react with withdrawal, become seclusive and noncommunicative; others will react with confusion and marked disorganized behavior; others will respond to the stress in stride and will attempt a constructive resolution to the new situation.

It is the basic function of the mental apparatus to establish equilibrium and stability after a disturbance by external stimuli. The deleterious effect occurs when there is too high an influx of excitement and the individual is unable to discharge it; i. e., it is beyond the limits of his mastery. The limits of mastery in a new situation depend on the constitutional factors and previous experiences of the individual. As has been repeatedly pointed out, previous conditioning and experience will do much in alleviating the possibility of panic and confusion, by greatly aiding the person to master the new situation.

The traumatic effect can be heightened by waiting and anticipating, without a prior knowledge of what to expect, and it seems to be in direct relationship to the unexpectedness of the trauma. If an individual is prepared for a coming event, and has anticipated it in thought through a thorough knowledge of what might occur, he will more likely be able to accept the trauma when it comes and thus be able to overcome and resolve the situation constructively. During the period immediately after the catastrophic event, the individual who has been stunned and bewildered needs to ventilate, which is a child-like attitude of dependency; and to be permitted to do so is an essential adjunct to treatment at this phase. He wants to be given something—coffee, a cigarette, or a blanket; he wants to be looked after. The importance of the giving and nursing is not so much related to the actual kind of act as to the psychological meaning of the being cared for.[9] This dependency is generally transitory, and the individual is quite unwilling to talk about it a day or so later. The state is associated with the need to be with others and a disinclination to be left alone.

GROUP BEHAVIOR

Man, by inborn instinct, is a gregarious being. His entire life is dominated by contact with other people. When confronted by danger, his major drive to be freely accepted as a full-fledged member of the group is intensified. Yet, man's behavior in any group is psychologically different from that when he is alone. He does things as a member of a group that would be completely foreign to him without its influence. This behavior is adequately explained by the basic principles of group psychology.

In the ordinary sense of the word, crowd means a gathering of individuals irrespective of their genetic equipment and backgrounds or whatever chance may have brought them together. Under certain circumstances, and only under those circumstances, a group of men presents new characteristics very different from those of the individuals composing it. Sentiments and ideas of all persons in the gathering take one and the same direction, and the conscious personality of the individual disappears. A compositing of mental reactions and attitudes is formed, in all probability transitory, but presenting clearly defined characteristics. Such a group becomes a "psychological crowd" and forms as a single being. According to Freud,[11] a person in a group is brought under conditions that allow him to throw off the repressions of his unconscious instincts. In a sense, the conscious disappears; the individual develops a sentiment of great power that allows him to give free reign to instincts, that, had he been alone, would have been controlled. He sacrifices his interest to the collective interest.

The absence of community organization, education, principles of mental health, and factual orientation in the situation faced may add immeasurably to the impact of stress and the possibility of panic. When a "crowd" is tense and insecure and when imagined danger has not been dispelled, the stage is set for the introduction of stimuli to react by panic. The members of the panicked group may act together, but the action probably is illogical, irrational, and dangerous to the group members.[12]

CONCLUSIONS

We are discovering the price we are paying for our democratic way of life and, as men before us discovered, we find that the attitudes, the thought patterns, and intellectual preparation that served us well in the past are not good enough to serve in the future. We should appreciate what our actions and goals are costing us—that if we choose, we may pay for them in pain and illness; but that, through education and mental health, we will decide what actions and goals are faulty and unreal, then alter our direction and pace accordingly.

Democracy is a homely, personal thing. Its strength depends utterly upon the individual, his wisdom and qualities of moral goodness. The psychological, emotional, and spiritual resources of mature, responsible citizens will be of critical importance to the survival of our nation should atomic war reach our homeland. An effective level of common purpose and sound state of mind, achieved through nationwide civil defense and mental health programs, is essential in maintaining the will to victoriously resist the enemy.

10. Cameron, D. C.: Psychiatric Implications of Civil Defense, Am. J. Psychiat. **106**: 587-593 (Feb.) 1950. Psychological First-Aid in Community Disasters, Washington, D.C., the American Psychiatric Association, Committee on Civil Defense, 1954.

11. Freud, S., cited by Farnsworth D. L.: Medical Progress: Mental Health Aspects of Civil Defense, New England J. Med. **247**: 209-216 (Aug. 7) 1952.

12. Caldwell, J. M.; Ransom, S. W., and Sacks, J. G.: Group Panic and Other Mass Disruptive Reactions, U. S. Armed Forces M. J. **2**: 541-567 (April) 1951.

RESPONSE OF HUMAN BEINGS ACCIDENTALLY EXPOSED TO SIGNIFICANT FALL-OUT RADIATION

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After detonation of a nuclear device in the Marshall Islands during the spring of 1954, radioactive material fell upon several neighboring inhabited atolls.[1] The fall-out material consisted of pulverized and incinerated coral (calcium oxide) coated with radioactive fission products, forced high into the atmosphere by the violence of the explosion. The particulate matter was then distributed over a wide area by the wind structure. The field of radiation resulting from the deposition of this radioactive material on the islands was sufficiently intense to result in significant whole-body irradiation of the inhabitants. In addition, the skin was contaminated with the material, and some of it was inhaled and ingested. The calculated whole-body dose of radiation in roentgens as measured in air and the amount of fall-out observed for each of the island groups is shown below. The exposed American servicemen were returned to duty after extensive medical examinations at Kwajalein and at the Tripler General Hospital, Honolulu, T. H. The Utirik people were returned to their native atoll after the initial period of observation. The Rongelap and Ailinginae residents were moved to Majuro Atoll for temporary occupation of dwellings built for them. These gamma ray doses were calculated from field instrument readings taken at the time of evacuation and decay schemes appropriate for the estimated times of exposure. For the sake of brevity, details will be presented only on the more severely exposed Rongelap group and the other groups will be referred to only for comparative purposes.

Calculated Whole Body Dose of Radiation

Island Group	Population	Whole-Body Dose in r	Fall-Out Observed
Rongelap	64 Marshallese	175	Heavy (snow-like)
Ailinginae	18 Marshallese	69	Moderate (mist-like)
Rongerik	28 American servicemen	78	Moderate (mist-like)
Utirik	157 Marshallese	14	None

The detonation of the device was observed in the early morning, and hours later the exposed individuals noticed a snow-like material falling from the sky; this continued for several hours. The material was visible on the ground and sifted into the lightly constructed thatched-roof houses. The material whitened the hair and clung to the skin. During the night following the explosion and for the next two days, about two-thirds of the population developed nausea and 10% vomited and had diarrhea. During this period also, many developed itching and burning of the skin and some reported burning of the eyes with lacrimation. Supervised decontamination and medical care was not possible until the exposed individuals were evacuated to the nearby naval base at Kwajalein. By this time, initial symptoms had completely subsided.

An emergency medical team, composed largely of naval personnel from the Naval Medical Research Institute and the U. S. Naval Radiological Defense Laboratory, was organized and sent to the area, arriving on the ninth day after exposure. Complete initial histories and physical examinations and frequent follow-up examinations and treatment for medical conditions were carried out on all personnel. In addition, hematological studies to assay the degree of radiation damage and urinary excretion studies for radioactive materials were performed. It was apparent from initial blood studies that significant radiation had been received, and by 12 to 14 days further evidence of radiation injury was apparent in the form of skin lesions and epilation. With the exception of the development of skin lesions and epilation, physical examinations at no time revealed findings in any group that could be attributed with certainty to radiation.

CLINICAL OBSERVATIONS, THERAPY, AND HEMATOLOGICAL FINDINGS

Since the degree of depression of peripheral blood elements is believed to be the best index of severity of radiation injury, systematic serial determinations were carried out. These determinations consisted of total leukocyte, neutrophil, lymphocyte, and platelet counts and hematocrit determinations. Control groups, as comparable as possible to the exposure groups in respect to age, race, sex, and background, were selected. Findings are expressed in terms of percentage of control values. Significant age and sex difference in blood cell counts were noted in the control groups, and the data are presented in accordance with the differences noted.

The absolute neutrophil count (fig. 1) of both younger and older age groups fell to a value of approximately 70 to 80% of that of the controls during the second week, followed by a period of fluctuation until the fifth week. At this time the beginning of a second depression was noted for both age groups, and a low value of approximately 50% of that of the controls was reached. The

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Read before the Section on Military Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

Drs. David A. Wood, University of California Hospital, San Francisco, and Edward L. Alpen, U. S. Naval Radiological Defense Laboratory, San Francisco, made the histopathological evaluation of the skin lesions.

The discussion of this paper was opened by Dr. Lee E. Farr, Upton, N. Y., and Major Carl Hanson, Washington, D. C.

1. Effects of High-Yield Nuclear Explosions, statement by Lewis L. Strauss, chairman, and report by United States Atomic Energy Commission, Atomic Energy Commission, Feb., 1955.

level was maintained at approximately 75% of the control values from the 7th week to the end of the critical period of observation (10th week). The values for the lower age group were below those of the older age group throughout most of the period of observation. The absolute lymphocyte count (fig. 1) of the older age group had fallen by the third day to a value of approximately 55% of the control value. This value was maintained throughout the study, with no definite evidence of an upward trend. The values for the younger age group also fell before the third day to a value of approximately 25% of the control value, after which there was a significant upward trend, recovery being more rapid in the younger age group. Since the mean lymphocyte counts remained essentially constant throughout the study, the fluctuation in total white blood cell count was a reflection of changes in the neutrophil component (fig. 1).

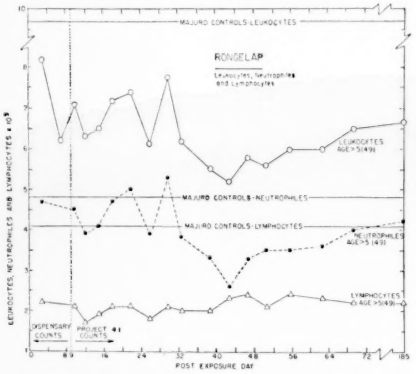

Fig. 1.—Mean leukocyte changes in highest exposure group (64 people).

The sequelae of depression of hemopoiesis are generally considered as the major source of morbidity and mortality from whole-body radiation injury.[2] Therefore, in view of the low leukocyte counts that developed in the Rongelap people, the use of prophylactic administration of antibiotics was given careful consideration. Twenty-seven individuals had absolute neutrophil counts of 2,500 per cubic millimeter or less at some time during the period of observation. Temporary depressions as low as 700-1,000 were observed. Prophylactic admininistration of antibiotics was not instituted because all individuals were under continuous medical observation and it was felt that such drugs might obscure medical indication of treatment and lead to the development of drug-resistant organisms. An epidemic of upper respiratory infection developed between the 27th and 47th days after exposure in all of the exposed groups. Fifty-eight per cent of the Rongelap people were involved. The disease did not appear to be more severe in this than in the other less exposed groups. There was no correlation between leukopenia and incidence of infection.

Platelets were first counted 10 days after exposure (fig. 2), at which time the level in the females were approximately 60% of the appropriate control group. After this, the platelet count fell, reaching a low of approximately 30% of the control value during the fourth week. (At this time counts in 20% of the Rongelap people were below 90,000 platelets per cubic millimeter.) The platelet level rose during the fifth and sixth week and had reached the value noted for the initial counts on the 10th day. A second decrease in platelets developed during the seventh and eighth week, and values remained at approximately 70% of the control values during the remainder of the observation period. The pattern of the platelet counts in the male groups was similar to that noted for the females. Counts of the lower age group, males, were consistently higher than those of the adult group in absolute counts but consistently lower as percentage of control.

There was no evidence of hemorrhage into tissues, even though in 11 individuals platelet count levels reached between 35,000 and 65,000 per cubic millimeter. Two women menstruated when their platelet counts were 150,000 and 130,000 per cubic millimeter respectively. Both experienced excessive menstrual bleeding, insufficient to cause them concern, which subsided without therapy.

Six months after the accident, blood cell counts showed only slight increase over previous ones during the last week (10th) of the initial observation period and were still below control levels. Follow-up studies at one year after the accident showed that the neutrophil counts of the exposed individuals were back to the control level; however, the lymphocytes, monocytes, eosinophils, and platelets were still below control levels, though they were higher than after six months. Hematocrit determinations

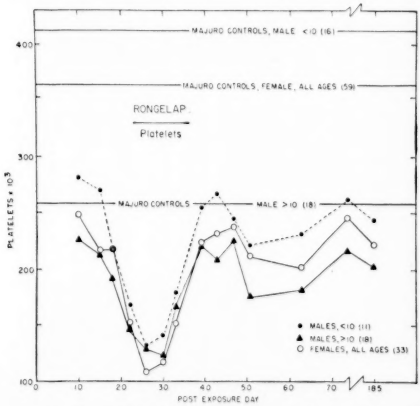

Fig. 2.—Mean platelet changes in highest exposure group (64 people).

2. Dunham, C. L.; Cronkite, E. P.; LeRoy, G. V., and Warren, S.: Atomic Bomb Injury: Radiation, Council on National Emergency Medical Service, J. A. M. A. **147**: 50 (Sept. 1) 1951. Cronkite, E. P., and Brecher, G.: Defects in Hemostasis Produced by Whole Body Radiation, in Clotting and Allied Problems: Transactions of the Fifth Conference, January 21 and 22, 1952, edited by Joseph E. Flynn, New York, Josiah Macy, Jr., Foundation, 1952. Bond, V. P.; Silverman, M. S., and Cronkite, E. P.: Pathogenesis and Pathology of Radiation Infection, Radiation Res. **1**: 389, 1954. Cronkite, E. P., and Brecher, G.: The Protective Effect of Granulocytes in Radiation Injury, Ann. New York Acad. Sc. **59**: 815, 1955.

first done on the 22nd day were slightly below those of the control population. A significant trend in values after this time could not be detected statistically. The less-exposed island groups showed similar, but in most cases less pronounced, hematological change that was consistent with the lower doses calculated for these groups.

Fig. 3.—*A*, epilation in 7-year-old girl at 28 days. *B*, six months later, showing complete regrowth of hair.

The time course of hematological changes corresponded most closely with the low-dose Japanese groups exposed to radiation from the Hiroshima and Nagasaki bombs [3] in which definite signs of severe radiation exposure were present in some individuals but in which no mortality occurred. Comparison with hematological data in Japanese groups in which fatalities occurred make it probable that exposure in the highest exposure group of Marshallese was moderately severe, probably within 50 to 100 r of the level where some fatalities would have resulted. The skin and internal radioactive contamination were considered not to have contributed significantly to the depression of the hematological elements.

Fig. 4.—*A*, pigmented lesions of neck and antecubital fossae in 13-year-old boy (29 days after exposure). Desquamation with depigmentation of neck lesions has begun. *B*, extensive lesions in 13-year-old boy at 45 days after exposure.

The body weight of individuals in the Rongelap and Ailinginae groups was followed routinely. Adults as well as children lost some weight during the period of observation in spite of the fact that they lived inactive lives and ate heartily. Whether the failure to gain weight was connected with radiation or change in environment is open to question. Four women in the Rongelap group were pregnant when brought to Kwajalein. None of these women had abnormal symptoms referable to radiation. All of the pregnancies have since terminated in delivery of apparently normal babies.

Fig. 5.—*A*, hyperpigmented raised plaques and bullae on dorsum of feet and toes at 28 days. One lesion on left foot shows deeper involvement. Feet were painful at this time. *B*, six months later. Foot lesions have healed with repigmentation, except for depigmented spots persisting in areas where deepest lesions were.

SKIN LESIONS AND EPILATION

Irradiation of the skin resulted largely from beta radiation from the fall-out material deposited on the skin. Due to the complex composition of the radioactive materials, and because of other uncertainties, it was impossible to calculate the skin dose accurately. The dose was sufficiently large, however, to produce epilation and widespread lesions of the skin in 90% of the Rongelap group, beginning about 12 to 14 days after the exposure. In the less heavily exposed groups (Ailinginae and Rongerik), the lesions did not appear until approximately 20 days after the accident. In the Utirik group, radiation lesions of the skin did not appear. The lesions occurred primarily on the exposed parts of the body not protected by clothing. Those who remained under shelter during the fall-out developed less severe or no lesions. Some protection was afforded those who bathed during this period. Almost simultaneously with develop-

3. LeRoy, G. V.: Hematology of Atomic Bomb Casualties, Arch. Int. Med. **86**: 691 (Nov.) 1950. Oughterson, A. W., and others: Medical Effects of the Atomic Bombs, report of the Joint Commission for Investigation of the Effects of the Atomic Bomb in Japan, vol. 3 and 5, Office of Air Surgeons, Army Institute of Pathology, Atomic Energy Commission, 1951.

4. Knowlton, N. P., Jr., and others: Beta Ray Burns of Human Skin, J. A. M. A. **141**: 239 (Sept. 24) 1949.

5. Robbins, L. L., and others: Superficial "Burns" of the Skin and Eyes from Scattered Cathode Rays, Radiology **46**: 1, 1946. Low-Beer, B. V. A.: External Therapeutic Use of Radioactive Phosphorous: 1. Erythema studies, ibid. **47**: 213, 1946. Wirth, J. E., and Raper, J. R.: Chapter 12, in Biological Effects of External Beta Radiation, edited by R. E. Zirkle, ed. 1, New York, McGraw-Hill Book Company, Inc., 1951.

V 1
195

ment of skin lesions, spotty epilation of the scalp was noted (fig. 3*A*). Epilation was usually accompanied or preceded by lesions of the scalp. This was more extensive and severe among the children (birth to 15 years). Over 90% of the children showed some degree of epilation, as compared to 28% in the older age group. Re-

Fig. 6.—Desquamation of back of scalp at 28 days. Epilation occurred earlier in desquamated area. Note persistent ulceration of left ear.

growth of hair of normal color and distribution was noted beginning about nine weeks after irradiation and was complete six months after the accident (fig. 3*B*).

The developing lesions did not follow the identical course as observed by Knowlton and co-workers [4] in individuals after handling concentrated fission products or after other beta burns.[5] Primary and secondary erythema was not observed. The lesions showed differences in latent periods before appearance on different parts of the body and appeared in roughly the following sequential order: scalp, neck, axillary region, antecubital fossae, feet, arms, legs, and trunk. The neck and scalp lesions were most common; however, a substantial number of antecubital fossae lesions and foot lesions were seen. Lesions on the flexor surfaces tended to appear before lesions on extensor surfaces. These differences in latent periods did not appear to be related entirely to the dose to the skin, since severe foot lesions, presumably caused by the foot receiving a larger dose of radiation, did not appear until after other less severe lesions.

The first indication of a lesion was an increase in pigmentation in the form of macules, papules, and raised plaques (fig. 4*A*). Usually these dark pigmented lesions had a dry, thickened, leathery feel. Most lesions were superficial. After several days, dry, scaly desquamation developed from the center of the lesion outward. Desquamation left depigmented areas similar in texture to the surrounding skin (fig. 4*B*). During the next few weeks, the lesions gradually became repigmented and the skin became relatively normal in appearance. Approximately 20% of the group developed deeper lesions. These were seen on the neck, scalp, and ear, and most frequently on the feet (fig. 5 and 6). These lesions were painful and were characterized by wet desquamation with weeping and crusting, and, in some foot lesions, desquamation was preceded by bullous formation (fig. 5*A*). Some lesions became secondarily infected; however, all lesions except one ear lesion healed rapidly and reepithelized in a week or 10 days. The ear lesion took about four months to heal. Repigmentation gradually took place in most lesions, and some of the healing lesions, particularly on the neck, showed development of hyperpigmentation of a grayish, dusky color and a thickening of the skin with "orange-peel" appearance.

Biopsy specimens taken from lesions during the third to fourth week revealed histopathological changes consistent with radiation damage (fig. 7). Spotty transepidermal damage with atrophy and flattening of the rete pegs was a common finding, with areas of relatively normal skin between, emphasizing the particulate nature of the radioactive material. Cells of the malpighian layer showed pleomorphic nuclei, pyknosis, and cytoplasmic halos. Focal disorganization of the malpighian and basal layers was present in extensively damaged areas. In the dermis, telangiectatic vessels were noted where the overlying epidermis showed greatest damage. There was mild edema of the pars papillaris with lymphocytic infiltration, particularly around the telangiectatic vessels. Atrophy of hair follicles was observed.

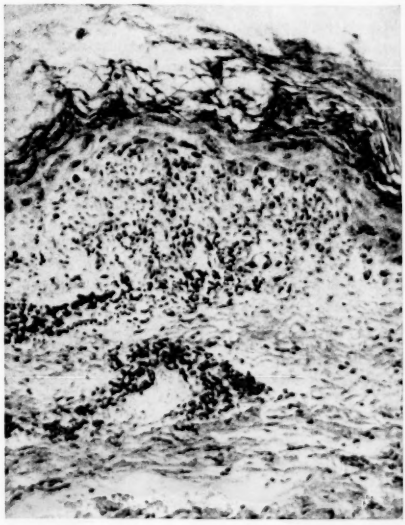

Fig. 7.—Photomicrograph of pigmented skin lesion three weeks after exposure (× 100). Extensive transepidermal damage with less involved areas on either side. Loose lamination of stratum corneum, absence of stratum granulosum, and disorganization of malpighian layer. Dermis shows mild edema of pars reticularis, indistinct capillary loops, moderately pronounced perivascular cellular infiltrate, and mild telangiectasia.

Follow-up studies at six months and one year showed that the hyperpigmentation had in most cases disappeared. At the site of deeper foot lesions and the ear lesions, there were pink-to-white areas that had not repigmented (fig. 5*B*). In these areas the skin appeared slightly atrophic. Treatment of the skin lesions consisted of daily cleansing and symptomatic therapy with

the exception of locally applied antibiotic ointments for infected lesions and in one case parenterally given penicillin.

The possibility that cancer might develop at the site of some of these lesions must be considered. Favoring such development are the long life expectancy of the numerous children in the exposed group, constant exposure to tropical sunlight, and the possible influence of additional sublethal whole-body exposure. Against such development are the superficial nature of the lesions, rapid healing with little in the way of residual gross defects, and only minimal evidence of histological damage by six months.

Pigmentation of the semilunar area of the fingernails and toenails was observed about the 23rd day in most of the Marshallese in the higher exposure groups and in the five American Negroes but in none of the white Americans. The pigmentation was beneath the nail and progressed distally with growth of the nail. A similar phenomenon has been observed in a Negro woman after local therapeutic irradiation.[6]

INTERNAL RADIATION HAZARD

Radiochemical analysis of numerous urine samples of exposed personnel showed that the degree of internal absorption of radioactive materials was roughly proportional to the calculated external dose and, therefore, to the concentrations of air-borne fission products. The degree of internal radiation hazard was too low to have contributed significantly to the acute radiation syndrome observed. The concentration and type of internal radioactive contaminants minimize the probability of any significant long-term effects from the internal radiation.

SUMMARY AND CONCLUSIONS

After detonation of a thermonuclear device in the Marshall Islands in the spring of 1954, radioactive fallout occurred over an area of thousands of square miles beyond the range of thermal and blast injury. Marshallese and Americans were accidentally exposed on islands in this area, receiving whole-body gamma radiation, beta radiation injury to skin, and minimal internal contamination. The highest dose (an estimated 175 r) was received by a group of 64 Marshallese. The dose of radiation received proved to be sublethal. Though there was significant depression of hemopoiesis, no clinical signs or symptoms developed that could be attributed with certainty to this effect. Prophylactic administration of antibiotics or other specific therapy was not found to be indicated.

Skin lesions and epilation developed in 90% of the group beginning about two weeks after the exposure. The lesions occurred largely on exposed parts of the body not protected by clothing, and varying degrees of protection were also afforded those who remained indoors or bathed during the fall-out period. Most of the skin lesions were superficial and exhibited pigmentation; dry, scaly desquamation; and rapid healing with little pain. Some lesions were deeper, exhibiting wet desquamation, and a few became secondarily infected. Treatment was largely palliative except for use of antibiotics for secondarily infected lesions. Histopathological examination of lesions showed changes consistent with radiation damage. Bluish-brown pigmentation was noted in the fingernails and toenails of the dark-skinned people but not in the white Americans. Minimal amounts of radioactive material were detected in the urine. The internal deposition was insufficient to contribute significantly to the acute reaction, and it is believed there is no long-term hazard. Examinations conducted one year after the exposure revealed these people to be in generally good health. Slight depression of lymphocytes and platelets persisted. A few pigment aberrations and minimal atrophy remained at the site of the deeper skin lesions.

6. Sutton, R. L., Jr.: Transverse Band Pigmentation of Fingernails After X-Ray Therapy, J. A. M. A. **150**: 210 (Sept. 20) 1952.

V 1
195

RADIOIODINE TREATMENT OF EUTHYROID CARDIAC DISEASE

FOUR YEARS OF EXPERIENCE WITH TWO HUNDRED THIRTY-ONE PATIENTS

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and
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Two hundred thirty-one euthyroid, seriously ill cardiac patients have been treated with radioactive iodine (I^{131}) since February, 1950, in the department of radiation therapy and the cardiac outpatient department of the Cedars of Lebanon Hospital in Los Angeles. Of particular interest is the analysis of the original 100 patients treated four years ago.

Radioiodine treatment for euthyroid cardiac invalids was pioneered by Blumgart and his associates in March, 1947. They reported, in August, 1952, their results in the treatment of 39 patients followed for 40 months.[1] In April, 1951, Wolferth and his group [2] gave account of 28 patients treated with radioiodine for intractable angina pectoris. Stuppy,[3] Jaffe,[4] Pobirs,[5] and Rosenfeld [6] reported upon 95 treated patients in November, 1951, and upon end-results in 100 patients in June, 1952.[7] In 1952, Chapman [8] described 23 treated cases. Serber and his group [9] reported 24 cases in February, 1953. Blumgart [10] gave the chairman's address of the Section on Internal Medicine at the annual convention of the American Medical Association, June, 1954, de-

From the Radiation Therapy Department and Department of Medicine, Cedars of Lebanon Hospital.

This work was supported by grants in memory of Helen W. Daniels and Mary Arnold.

1. Blumgart, H. L., and Freedberg, A. S.: Lewis A. Conner Memorial Lecture: Heart and Thyroid: With Particular Reference to I^{131} Treatment of Heart Disease, Circulation **6**: 222-237 (Aug.) 1952.

scribing the results in treatment of 1,070 patients from 47 clinics, 64% of whom were observed for longer than one year. Published reports by these authors have been favorable in respect to the treatment of angina pectoris, and, with the exception of Serber,[9] the reports have also been favorable in respect to the treatment of severe congestive failure. Although Wolferth [2] reported upon only 28 patients treated for angina pectoris, he commented in his paper that he and his associates were convinced that radioiodine had a place in the treatment of severe intractable congestive heart failure.

SELECTION OF PATIENTS

Blumgart and his associates [1] have stressed the importance of selecting only patients in whom the disease has been relatively stationary for months or years. They cite as especially unfavorable such rapidly progressive diseases as malignant hypertension and syphilitic aortitis. Other contraindications in their opinion are existing hypothyroidism, active rheumatic fever, recent myocardial infarction, bronchiectasis, cirrhosis of the liver, and emotional instability. Wolferth and his associates [2] require the following conditions before they are willing to apply radioiodine to patients with angina pectoris: 1. The anginal syndrome is so severe that the patient is incapacitated from earning a living, or is awakened so frequently at night that adequate rest is impossible. 2. Response to a careful regimen of life and adequate medicinal treatment has been unsatisfactory. 3. The condition has lasted long enough so that spontaneous improvement is unlikely. 4. No signs of hypothyroidism are present and the uptake of I^{131} in a tracer dose is within normal limits. 5. The blood cholesterol level is not abnormally high. 6. The patient has demonstrated his willingness to cooperate by refraining from using tobacco to excess and by adhering to a low-fat diet.

Serber and his group [9] accepted euthyroid patients with severe recurring angina or repeated episodes of congestive failure uncontrolled by the usual medical means. The criteria of these authors are all excellent guides. We feel that to use radioiodine in the moribund patient is inadvisable, because hypothyroidism can be produced only gradually. In commenting upon the cases of Chapman, Paul D. White [11] stated that radioiodine should be used only for severely ill patients in whom angina pectoris has recurred over a long period of time (more than a year), or for those patients with extreme intractable congestive failure. The ability of collateral circulation to develop and angina to improve spontaneously makes the evaluation of radioiodine treatment even more difficult; but, he stated, treatment is symptomatic, and most patients treated have improved.

High cholesterol blood levels may not be proper grounds upon which to exclude patients from radioiodine treatment. It is likely that constitutional hypercholesteremia in certain euthyroid persons may lead to early atherosclerosis and cardiac disease; however, it is not established that hypercholesteremia of the degree obtained in relative hypothyroidism from radioiodine therapy will accelerate this process. Blumgart and associates [1] found no evidence of increased atherosclerosis in autopsies of five patients with rheumatic heart disease who had been hypothyroid from 1 to 11 years. We have had no autopsies of patients who were suitable for providing us with this kind of information.

DESCRIPTION OF PATIENTS AND THEIR MANAGEMENT

Patients in our series were treated for severe angina pectoris or severe congestive heart failure or for a combination of both. A few patients treated suffered from paroxysmal acute pulmonary edema. Several of these patients with serious heart disease also had troublesome cardiac arrhythmias poorly controlled by drug therapy. The etiology of our cases was rheumatic, hypertensive, arteriosclerotic, congenital, and pulmonary. All of the patients had advanced heart disease and had not responded to the usual modes of therapy. Patients who had active rheumatic fever, or recent coronary occlusions, or who were already hypothyroid were not accepted. Patients with cardiac disease and hyperthyroidism who were treated with radioiodine were not included in this series for analysis.

The first group of 100 patients has been under observation for four years. The second group of 131 patients has been observed from six months to three years, with at least half this group followed for one year. The average follow-up time for all 231 patients was 29 months. Of the 231 patients, 51 were followed medically in the cardiac outpatient department. The other 180 were private patients who were followed by their own physicians. The same plan of management was used for clinic and private patients.

The rationale of treatment is to produce a state of beneficial relative hypothyroidism by lowering the total metabolism of the body, so that the heart has less work to do. Therapy is only symptomatic, and the condition of the heart is in no way changed or cured by radioiodine. In conjunction with radioiodine therapy all other modes of cardiac treatment are given as indicated. After radioiodine treatment, our practice has been to avoid severe symptomatic hypothyroidism, prescribing where necessary thyroid extract in doses of 1/10 to ½ grain (6 to 30 mg.) daily. The clinical courses of the patients have been most carefully followed to detect the earliest symp-

2. Wolferth, C. C.; Chamberlain, R. H., and Mead, J. J.: Radioactive Iodine in Treatment of Angina Pectoris, Pennsylvania M. J. **54**: 352-358 (April) 1951.

3. Stuppy, L. J.: Radioiodine Treatment of Euthyroid Cardiac Disease: Introduction, Ann. West. Med. & Surg. **5**: 913-916 (Nov.) 1951.

4. Jaffe, H. L.: Multiple Small Dose Radioiodine Technic for Treatment of Severe Cardiac Disease in Euthyroid Patients, Ann. West. Med. Surg. **5**: 916-919 (Nov.) 1951.

5. Pobirs, F. W.: [Radioiodine Treatment of Euthyroid Cardiac Disease]: Clinical Course and Illustrative Cases, Ann. West. Med. & Surg. **5**: 919-922 (Nov.) 1951.

6. Rosenfeld, M. H.: Results Obtained by Treating Severe Cardiac Disease in Euthyroid Patients with Radioiodine, Ann. West. Med. & Surg. **5**: 923-925 (Nov.) 1951.

7. Jaffe, H. L.; Rosenfeld, M. H.; Pobirs, F. W., and Stuppy, L. J.: Radioiodine in Treatment of Advanced Heart Disease: End Results in One Hundred Patients, J. A. M. A. **151**: 716-720 (Feb. 28) 1953.

8. Chapman, E. M., in Case 220: Angina Pectoris: Treatment by Radioactive Iodine, Cases from the Medical Grand Rounds, Massachusetts General Hospital, Am. Pract. **3**: 751-753 (Sept.) 1952.

9. Serber, W.; Isard, H. J., and Bergelson, V. D.: Radioiodine Treatment of Euthyroid Patients with Angina and Congestive Heart Failure, J. Albert Einstein M. Center **1**: 89-93 (Feb.) 1953.

10. Blumgart, H. L.; Freedberg, A. S., and Kurland, G. S.: Treatment of Incapacitated Euthyroid Cardiac Patients with Radioactive Iodine: Summary of Results in Treatment of 1,070 Patients with Angina Pectoris or Congestive Failure, Chairman's Address, J. A. M. A. **157**: 1-4 (Jan. 1) 1955.

11. White, P. D., in Case 220: Angina Pectoris: Treatment by Radioactive Iodine, Cases from the Medical Grand Rounds, Massachusetts General Hospital, Am. Pract. **3**: 751-753 (Sept.) 1952.

toms of hypothyroidism and to relieve these as much as possible, even before laboratory tests have been definitely positive.

The cooperation of the patient is essential. With the symptoms of his weakened heart masked by the lowered metabolic rate, he might be tempted to expend energy foolishly. We describe for each patient the complete plan of treatment so he knows that this therapy is merely an attempt to lower the metabolic rate of the body and thereby lessen the strain on the heart. He is instructed to recognize the signs of myxedema, such as coldness of the extremities; swelling of the eyelids, face, and tongue; thickened speech; muscle aches; joint pains; bloating; and extreme fatigue. As soon as he realizes any such symptoms in himself, he reports them to his internist, who may then prescribe the proper thyroid medication to control these undesirable symptoms.

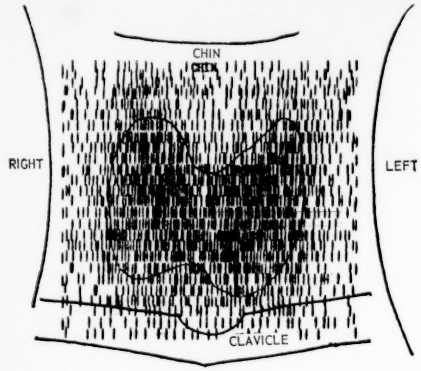

Fig. 1.—"Thyrogram" (diagram of the thyroid gland made by a scintillation counter) made 24 hours after administration of a tracer dose of radioactive iodine (I^{131}).

TECHNIQUE OF RADIOIODINE THERAPY

A tracer dose of 5 μc of I^{131} is given orally to the patient in the department of radiation therapy, and the radioiodine thyroid gland 24-hour uptake is measured. A second dose of radioiodine of 500 μc is given orally after the uptake study has been completed, and a "thyrogram" (silhouette of the thyroid gland made by a scintillation counter [12]) is made the next day (fig. 1). This provides a diagram of the approximate size, shape, and degree of the uptake of the entire thyroid gland. Radioiodine, averaging 6 mc. per dose, is given orally each week until the patient has a total of 30 mc. This is called the first course of treatment. Previous to the thyrogram technique, we had to rely on clinical and uptake studies and other laboratory data for the determination of the effect of the first course of radioiodine. This necessitated waiting two to three months before the post-treatment thyroid uptake test could be done, since there was too much residual radiation activity of the gland to allow doing an uptake study before the end of the two-month interval. Now it is possible to check the gland size and function one month after the first course of treatment (fig. 2). If the patient has not improved and the thyrogram indicates that the thyroid gland is still functioning normally (fig. 3) a second course of five weekly oral doses of 6 mc. of I^{131} is prescribed. A third thyrogram is made and the patient's progress evaluated one month after the second course. If necessary, a third course of I^{131} is prescribed, unless the patient already has signs of hypothyroidism.

The size of the dose of radioiodine used varies from clinic to clinic. We prefer to give 6 mc. oral doses of I^{131} at weekly intervals until the patient has received a total of 30 mc. Other clinics have given as much as 100 mc. in a single dose. We have chosen the small dose technique to avoid the danger of suddenly releasing large amounts of thyroxin from the destroyed gland into the blood stream. This might produce a temporary increase in metabolism that in a patient with severe cardiac disease could be detrimental, or even fatal. Another undesirable side-effect of larger doses of I^{131} is radiation thyroiditis, with an increased metabolic rate. In our first 100 patients with this plan of dosage the incidence of thyroiditis was low, and we found little evidence of temporary thyrotoxicosis subsequent to I^{131} therapy. Bone marrow depression is another possible hazard of massive therapeutic doses of I^{131}, but smaller doses have not endangered the patient in this way.

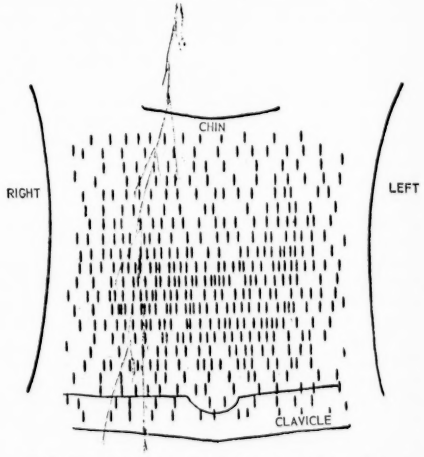

Fig. 2.—Thyrogram made two months after completion of the first course of radioactive iodine treatment. A total of 30 mc. in divided doses was given between Oct. 23 and Nov. 27, 1953. Almost complete reduction in size and function of both lobes is noted.

Safeguards against radiation are necessary when any radioactive material is used therapeutically. Single doses as large as 20 to 100 mc. make the patient a focus of considerable beta and gamma ray activity, and safe treatment usually means hospitalization of these patients so that trained personnel can handle the disposal of

12. Allen, H. C., Jr.; Libby, R. L., and Cassen, B.: The Scintillation Counter in Clinical Studies of Human Thyroid Physiology Using I^{131}, J. Clin. Endocrinol. **11**: 492-511 (May) 1951.

excreta. Smaller doses do not produce this problem, since I^{131} has a half-life of eight days, and therefore most persons may be treated as outpatients.

Apparently the radiobiological time factor in euthyroid cardiac patients treated with I^{131} is independent of the size of the single dose or total dose.[13] Symptomatic relief occurred in a comparable interval after a single dose of 25 mc. or five weekly doses of 6 mc. The same percentages of excellent and good results were obtained with multiple small doses of I^{131} as with the single or multiple large doses totaling 100 mc. reported by other

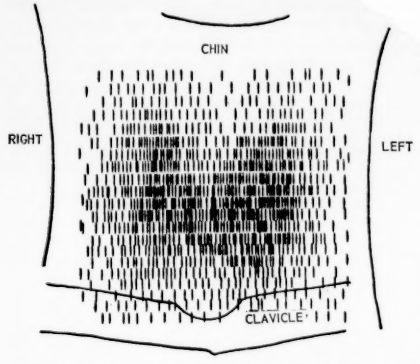

Fig. 3.—Thyrogram showing regeneration of thyroid tissue in both lobes to about 60% of the original size of the thyroid gland indicating gland has ability to recover its function after an apparently total medical thyroidectomy one month previous. A second course of radioactive iodine therapy was prescribed.

authors. Therefore, we have continued treating selected euthyroid incapacitated cardiac patients with a multiple small dose technique. Radioiodine should be used only in a laboratory completely equipped for handling radioisotopes where measurement instruments for calibration of the dosage are provided.

USE OF THYROID EXTRACT AND DEGREE OF HYPOTHYROIDISM DESIRABLE

It is our opinion, and the consensus of the opinion of most authors as recorded in the literature, that no greater degree of hypothyroidism should be permitted than adequate clinical relief of cardiac symptoms requires. Wolferth [2] and Serber [9] have used conservative radioiodine dosage. Serber has controlled myxedema where it developed in his patients with 15 to 30 mg. of thyroid extract with no interference with the beneficial effects of radioiodine therapy. Chapman [8] states that patients should not be allowed to develop myxedema but their basal metabolic rate should be kept at −20 to −25%, plasma bound iodine level at 2 to 3 mcg. per 100 cc., and radioiodine uptake at 10 to 20% in 48 hours.

Blumgart and associates,[1] however, according to their early reports have practiced permitting pronounced hypothyroidism, and in some instances complete myxedema, to develop in order to be sure that all thyroid tissue has been affected before administering 6 to 12 mg. of thyroid extract daily. They have adjusted the thyroid extract dosage to maintain the lowest metabolic level associated with the maximum relief of cardiac disease and the minimum discomfort from myxedema. They found in some of their patients that treating with sufficient thyroid extract to obviate symptoms of myxedema resulted in very little cardiac improvement over the pretreatment status. They then stated that in most of their patients they administered 6 to 30 mg. of thyroid extract to maintain basal metabolic rate levels of −20 to −25%. When our patients have shown symptoms of hypothyroidism we have prescribed doses of 12.5 to 30 mg. of thyroid extract daily. We insist that our patients not be allowed to develop the disagreeable clinical picture of severe hypothyroidism or myxedema. Some patients eventually regenerate thyroid tissue and need more radioiodine treatment. This is confirmed by follow-up I^{131} uptake studies and thyrograms that are made at three-month intervals.

RESULTS OF TREATMENT

Evaluation of Results.—The many and diverse clinical problems presented by patients with severe cardiac disease affect the evaluation of beneficial results obtained from radioiodine treatment. Complete symptomatic relief is not the prerequisite for an excellent or worthwhile result. A patient with angina pectoris decubitus who is relieved of the agonizing need to take glyceryl trinitrate (nitroglycerin) repeatedly throughout the day and night receives real help, even though after treatment walking without pain is still impossible. A patient who may be comfortable at rest but who cannot work because of repeated attacks of angina pectoris is greatly benefited if he is improved sufficiently to return to work. A patient with congestive failure and ascites gains much advantage if radioiodine treatment relieves

TABLE 1.—*Comparison and Summary of Results of Radioiodine Treatment of 231 Euthyroid Cardiac Patients in Two Series*

Results *	1st Series, 100 Patients		2nd Series, 131 Patients		Series Combined, 231 Patients	
	No.	%	No.	%	No.	%
Excellent	55	55	67	51	122	53
Died	23	42	5	7	28	23
Good	28	28	48	37	76	33
Died	7	25	10	21	17	22
No improvement	17	17	16	12	33	14
Died	15	83	6	38	21	64
Total	100	100	131	100	231	100
Died	45	45	21	16	66	29

* Classified according to Blumgart.[1]

the necessity of repeated paracenteses, so that sodium restriction or the use of mercurial diuretics is sufficient.

Knowing what relief has been obtained from other forms of medical treatment, and with the clinical problems of each patient crystallized and recorded, we can more accurately evaluate the effect of radioiodine treatment. The improvement in comfort, ability to care for self or to work, reduction in required drugs, and de-

13. Andrews, G. A., and others: Pathologic Changes in Normal Human Thyroid Tissue Following Large Doses of I^{131}, Am. J. Med. **16**: 372-381 (March) 1954.

crease in dangerous attacks of acute pulmonary edema must be weighed against the disadvantages of relative hypothyroidism.

Statistics.—The results of treatment in the total 231 cases treated to date have followed closely the pattern set when the first 100 cases were reported in 1952.[7] Of 231 cases, results were considered excellent in 53%, good in 33%, and there was no improvement in 14%. Comparison of results obtained in the first 100 cases with results in the second group of 131 cases is shown in table 1. The classification used to evaluate and compare results in both groups as presented here is that of Blumgart [1] in which excellent (marked improvement) is defined as markedly improved over pretreatment status, with either no recurrence of symptoms or a marked decrease in the frequency and severity of angina pectoris or congestive failure, despite activity greater than that possible before treatment and good or worthwhile result as definite decrease in frequency and severity of attacks on same activity as before treatment, or able to do considerably more with no increase in angina pectoris or congestive failure.

Excellent results were obtained in 55% of the first 100 cases and 51% of the second group of 131 cases. Results in 28% of the first group were judged good, whereas a greater number of additional good results, 37%, was obtained in the second group. Only 12% of the patients in the second group had no improvement, whereas 17% of the first group had been failures. Better selection of cases and more experience in the management of the treated patients may account for the improved results.

Patients with angina pectoris obtained a greater percentage of benefit than patients with congestive failure or angina and failure combined (table 2). The smaller percentage of patients with angina with no improvement confirms this. In both series, the proportion of excellent results was very nearly the same in patients with angina, congestive failure, and angina plus congestive failure. The patients with angina and congestive failure combined showed the lowest percentage of excellent results and the highest mortality. This might be expected, as those patients with manifestations of both types of cardiac dysfunction would be on the average the most seriously ill.

Of the first 100 patients treated and followed for four years, 45% have already died. The first patient of this group was treated 52 months ago, and the last patient was added to the group 36 months ago, giving a mortality of 45% over a period of 36 to 52 months. Among those 55 patients in the first group of 100 patients who had excellent results, 23 persons (42%) have died. Of those 28 patients who had good results, 7 persons (25%) have died, and of those 17 patients with poor results, 15 persons (88%) have died. Obviously, evaluation of the results obtained referred only to a certain circumscribed period of time. Although a high percentage of patients who had excellent results have died, a definite period of clinical improvement followed radioactive iodine treatment. The results could be considered good for the duration of the patients' lives. No evidence has been observed that radioiodine treatment has shortened the duration of life of these patients or influenced the development of atherosclerosis.

Although the work of the several groups investigating radioiodine as a treatment for euthyroid cardiac disease has been conducted independently, evaluations of the results obtained have been similar (table 3).

TABLE 2.—*Results of Radioiodine Treatment of Two Series of 231 Euthyroid Patients*

	With Severe Angina Pectoris						With Severe Congestive Heart Failure						With Severe Angina & Congestive Failure Combined					
	1st Series *		2nd Series †		Total		1st Series *		2nd Series †		Total		1st Series *		2nd Series †		Total	
Results	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Excellent	19	59	34	55	53	56	18	58	23	49	41	53	18	49	10	46	28	48
Died	4	..	3	..	7	..	7	..	..	..	7	..	12	..	2	..	14	..
Good	11	34	24	39	35	37	6	19	16	34	22	28	11	29	8	36	19	32
Died	2	..	5	..	7	..	2	..	4	..	6	..	3	..	1	..	4	..
No improvement	2	7	4	6	6	7	7	23	8	17	15	19	8	22	4	18	12	20
Died	1	..	1	..	2	..	6	..	2	..	8	..	8	..	3	..	11	..
Total	32	100	62	100	94	100	31	100	47	100	78	100	37	100	22	100	59	100
Died	7	22	9	15	16	17	15	48	6	13	21	27	23	62	6	27	29	49

* 100 patients.
† 131 patients.

TABLE 3.—*Radioiodine Treatment of Euthyroid Severely Ill Cardiac Patients, Comparison of Results in the Literature*

	Angina Pectoris, %					Congestive Heart Failure, %			
Results	Jaffe [4]	Blumgart [1]	Serber [9]	Wolferth [2]	Chapman [8]	Jaffe [4]	Blumgart [1]	Serber [9]	Chapman [8]
Excellent	56	34	31	67	..	53	31	..	..
Good	37	38	23	22	..	28	15	18	..
Total improved	93	72	54	89	45	81	46	18	57
No improvement	6	27	46	11	55	19	54	82	43
Total cases	94	26	13	18	9	78	13	11	7

SUMMARY

Of 231 patients with euthyroid cardiac disease treated with radioiodine (I^{131}), 100 were followed as long as 52 months but not less than 36 months and 131 were followed as long as 36 months but not less than 6 months. Patients were treated for severe angina pectoris, congestive failure, or a combination of both, resulting from most of the common etiologies for heart disease. The "thyrogram" (a diagram of the thyroid gland made by a scintillation counter) was used to check gland size and function, and the time interval between courses of radioiodine could therefore be shortened. Patients with angina pectoris (94 in number) showed 56% excellent and 37% good results. Only 7% showed no improvement. Patients with congestive failure (78 in all) showed 53% excellent and 28% good results; 19% showed no improvement. A group of 59 patients with angina pectoris and congestive heart failure combined showed 48% excellent and 32% good results; 20% showed no improvement.

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CLINICAL NOTES

EDEMA AND CONGESTIVE FAILURE RELATED TO ADMINISTRATION OF RAUWOLFIA SERPENTINA

George A. Perera, M.D., New York

Following the administration of alkaloids of Rauwolfia serpentina, the occasional occurrence of temporary sodium retention has been reported.[1] In the course of further experience with these drugs in the treatment of hypertension, fluid retention has now been encountered in five instances, even to the point of extensive edema, pulmonary congestion, and venous pressure elevation. The four women and one man who developed fluid retention all had documented hypertensive vascular disease with no previous history of dyspnea, edema, or cardiac pain. Four had negative urinalyses and one a 1+ proteinuria immediately prior to the episode. Three had been given 0.25 mg. of reserpine (Serpasil) twice daily by mouth, and two had been given Rauwolfia serpentina (Raudixin), 100 mg. twice daily by mouth, all five being on an ambulatory outpatient basis and on a self-selected diet but without extra salt.

In all instances moderate pitting edema of the ankles appeared within a week of the start of therapy. Two subjects went on to develop marked edema of the lower extremities and basal pulmonary rales, and one of these complained of moderate exertional dyspnea and exhibited some periorbital swelling. Both the patients with the more severe degrees of fluid retention, observed after three weeks of continued medication, had gained more than 4 lb. (1.8 kg.) in weight, with the venous pressure in an antecubital vein recorded as 116 and 130 mm. of saline respectively; both had a 1+ proteinuria; and a white blood cell count and differential smear was within normal limits in one. In only one patient of the group of five was there any significant reduction in blood pressure or pulse rate in association with drug administration. None complained of cardiac pain, and none exhibited any irregularities of cardiac rhythm.

No improvement was noted until therapy with the drug was discontinued, each patient having received from three to four weeks of sustained treatment without change in diet or dosage. Within one subsequent week all manifestations of abnormal fluid retention had vanished, one patient spontaneously remarking of her increased urine output. The weight of the two subjects with more marked edema returned to pretreatment levels by the end of the week, and in one of these it was possible to check the venous pressure, which had fallen to 80 mm. of saline. During a period of observation of from one to three months after treatment, no patient developed any recurrent edema or cardiac symptoms. At a later date, one of the patients who had developed marked edema while receiving reserpine was given the same drug in the same dosage for one week; definite pitting edema of the ankles was again apparent, and once more it vanished when administration of reserpine was discontinued.

COMMENT

The association of fluid retention in five patients treated with crude or purified alkaloids of Rauwolfia serpentina seems more than happenstance and, although no balance studies were undertaken, may possibly be related to the occasional sodium retention previously reported. It is difficult to attribute the accumulation of edema to changes in diet. Against the possibility of a coincidental cardiac decompensation in these hypertensive subjects are the negative previous histories, the temporal relationship to drug administration, the rapid remission following cessation of therapy, and the subsequent course. The minimal urinary findings do not suggest a nephrotic episode.

The observation that alkaloids of Rauwolfia serpentina may ocasionally produce fluid retention needs further confirmation, and the mechanism remains to be elucidated. In the meantime, this possibility should be kept in mind, particularly in patients who already have a lowered cardiac reserve.

SUMMARY

In five patients with hypertensive vascular disease, fluid retention occurred after the administration of crude or pure alkaloids of Rauwolfia serpentina. In two of these patients, the fluid retention was severe enough to cause congestive failure.

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From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

This study was supported by grants from the Albert and Mary Lasker and the Albert H. and Jessie D. Wiggin foundations and the Irwin Strasburger Memorial Medical Foundation.

1. Perera, G. A.: Rauwolfia Serpentina in Hypertensive Vascular Disease, Proc. Soc. Exper. Biol. & Med. **86**: 453-456 (July) 1954.

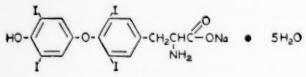
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. STORMONT, M.D., *Secretary.*

Sodium Levothyroxine.—$C_{15}H_{10}I_4NNaO_4.5H_2O$. — M.W. 889.00. — 3,3′,5,5′-tetraiodothyronine pentahydrate.—The structural formula of sodium levothyroxine may be represented as follows:



Actions and Uses.—Sodium levothyroxine is the sodium salt of the levo isomer of thyroxine (DL-thyroxine). Levothyroxine exhibits approximately twice the activity of the racemic (DL-) form. Sodium levothyroxine, which is more soluble and reportedly more active than the base, levothyroxine, also is more efficiently absorbed by the gastrointestinal tract and is effective in smaller oral doses than mixtures of D-thyroxine and L-thyroxine (thyroxin, U. S. P. XIII; thyroxin fraction, N. N. R. 1947). Approximately 50% of the oral dose of sodium levothyroxine is absorbed. The mean half-time of levothyroxine turnover is reported to be 6.5 days as measured by disappearance of radio-iodine (I^{131}) labeled levothyroxine from the serum in euthyroid subjects. Daily oral administration is cumulative and is capable of producing typical manifestations of hyperthyroidism.

Sodium levothyroxine is useful in the replacement therapy of diminished or absent thyroid function (cretinism, myxedema, and milder forms of hypothyroidism) resulting from primary atrophy, partial or complete absence of the gland (congenitally or surgically acquired), or from the effects of excessive radiation or antithyroid drugs. It should not be employed in hypometabolic states of nonthyroid origin or in conditions not definitely associated with thyroid deficiency. Replacement therapy reverses the symptoms of athyreosis and hypothyroid states and must be maintained to control the disease.

As with other thyroid preparations, overdosage may produce hyperthyroidism, so that it is necessary to keep patients under close observation for the development of signs or symptoms of thyrotoxicosis. Although the chemical purity of sodium levothyroxine permits more uniform standardization than with desiccated thyroid (thyroid, U. S. P.), clinical activity must be determined in each individual case. For purposes of rough comparison, 0.1 mg. of sodium levothyroxine produces the equivalent clinical effect of 30 to 60 mg. of thyroid, U. S. P.

Dosage.—Sodium levothyroxine is administered orally. The initial dosage for adults should range from 0.05 to 0.1 mg. daily. The response of the patient should serve as a basis for increments of 0.05 to 0.1 mg. in the daily dosage, and these increases should be made every 1 to 3 weeks until proper metabolic balance is obtained. The daily dosage required to achieve this may vary from 0.02 to 1 mg., but in most patients a maintenance dosage of 0.15 to 0.4 mg. daily is usually adequate. Adjustments in dosage should be gradual to avoid rapid changes. For children the initial dosage should not exceed 0.05 mg. daily. Increments in the daily amount of 0.025 to 0.05 mg. may be made every 1 to 3 weeks until the desired response is obtained.

The effects of overdosage may begin after 4 to 5 days, but they may not become apparent for 1 to 3 weeks. When signs of overdosage appear, medication should be stopped for 2 to 6 days and then resumed at a lower level.

Travenol Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of sodium levothyroxine.

Protoveratrine A and B Maleates.—The maleate salt of a mixture of two alkaloids, isolated by appropriate means, from Veratrum album. The chemical structure of the two alkaloids has not been established.

Actions and Uses.—Protoveratrine A and B maleates have the same actions and uses as the parent esters, protoveratrines A and B. (See New and Nonofficial Remedies 1955, under the monograph on protoveratrines A and B.) The same precautions should be observed in the use of the maleate as with the parent form of the mixture.

Dosage.—Protoveratrine A and B maleates are administered orally. On the basis of comparative molecular weights, approximately 13% more of the maleate salts than of the parent esters is required to provide equivalent dosage; however, the difference is not of particular significance except when therapy may be alternated in patients for whom optimal maintenance dosage has been individualized. Careful adjustment of the dosage for each patient is essential.

The average oral total daily dosage ranges from 1 to 2.5 mg., divided into three to five doses, preferably given after meals and at bedtime, at intervals of 4 to 6 hours. The initial oral dose is 0.5 mg. three times daily (after meals). Increases in dosage are made in accordance with blood pressure measurements at the time of peak action of the drug (1½ to 3 hours after the dose). It is recommended that the morning and evening doses be increased by increments of 0.125 mg. until the desired therapeutic effect or evidence of overdosage is observed. The noon dose is maintained at the 0.5 mg. level. A dosage schedule including between meal and bedtime doses may be more effective in some patients. With the appearance of nausea or vomiting, the preceding dose should be decreased by 0.125 mg.

Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of protoveratrine A and B maleates.

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

ADVISORY BOARD FOR MEDICAL SPECIALTIES

B. R. KIRKLIN, Secretary-Treasurer
Rochester, Minn.

Because of the overwhelming amount of material, the following pages concerning the American specialty boards are continued in this issue from the annual Internship and Residency Number of THE JOURNAL, *Sept. 24.*—ED.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate medical education and certification of medical specialists in the United States and Canada. A few specialty boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate education and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondarily, these boards hoped to improve the general standards of graduate medical education and facilities for special training.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the national societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining boards and using the title American board. In order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an advisory board to give consideration to those problems common to all and to represent all organizations concerned.

The Advisory Board is composed of two representatives from each of the approved examining boards in the medical specialties and such other national organizations as are interested in the education, examination, and certification of medical specialists. These representatives are duly elected to this body.

The number of organizations comprising the Advisory Board for Medical Specialties remains the same; namely, 18 specialty boards and 4 other organizations interested in graduate medical education. The total voting membership is still 44. The organizations and their representatives are as follows:

CURRENT MEMBERSHIP IN THE ADVISORY BOARD FOR MEDICAL SPECIALTIES—1955-1956

The Association of American Medical Colleges
JOHN B. YOUMANS — STANLEY E. DORST *

The American Hospital Association
ALBERT W. SNOKE — ROBIN C. BUERKI *

The Federation of State Medical Boards of the U. S. A.
CREIGHTON BARKER — WALTER L. BIERRING *

The National Board of Medical Examiners
ROBERT A. MOORE — JOHN P. HUBBARD †

The American Board of Ophthalmology
CONRAD BERENS — MERRILL J. KING *

The American Board of Otolaryngology
FREDERICK T. HILL — DEAN M. LIERLE *

The American Board of Obstetrics and Gynecology
HERBERT E. SCHMITZ — ROBERT L. FAULKNER *

The American Board of Dermatology and Syphilology
GEORGE LEWIS — BEATRICE KESTEN *

The American Board of Pediatrics
LEE FORREST HILL — JOHN McK. MITCHELL *

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FREDERICK P. MOERSCH — FRANCIS GERTY

The American Board of Radiology
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The American Board of Orthopædic Surgery
CLARENCE H. HEYMAN — HAROLD A. SOFIELD *

The American Board of Urology
RUBIN FLOCKS — HARRY CULVER *

The American Board of Internal Medicine
WALTER L. PALMER — HENRY M. THOMAS JR.

The American Board of Pathology
SHIELDS WARREN — WILLIAM B. WARTMAN *

The American Board of Surgery
WALTER G. MADDOCK — JOHN B. FLICK *

The American Board of Anesthesiology
R. J. WHITACRE — CURTISS B. HICKCOX *

The American Board of Plastic Surgery
FREDERICK A. FIGI — FRANK McDOWELL

The American Board of Neurological Surgery
FRANCIS C. GRANT — LEONARD T. FURLOW *

The American Board of Physical Medicine and Rehabilitation
ROBERT L. BENNETT — EARL C. ELKINS *

The American Board of Preventive Medicine
WILLIAM P. SHEPARD — ERNEST L. STEBBINS *

The American Board of Proctology
LOUIS A. BUIE — STUART T. ROSS *

* Corresponding member.
† Executive secretary of board.

Officers and Committees—1955

ROBERT A. MOORE, National Board of Medical Examiners, President
WALTER L. PALMER, American Board of Internal Medicine, Vice-President
B. R. KIRKLIN, American Board of Radiology, Secretary-Treasurer

MEMBERS OF THE EXECUTIVE COMMITTEE

Term to expire in 1956: ROBERT L. FAULKNER, American Board of Obstetrics and Gynecology
Term to expire in 1957: WALTER G. MADDOCK, American Board of Surgery

COMMITTEE ON STANDARDS AND EXAMINATIONS

HAROLD A. SOFIELD, American Board of Orthopædic Surgery, Chairman
SHIELDS WARREN, American Board of Pathology
FRANCIS GERTY, American Board of Psychiatry and Neurology

COMMITTEE ON AUDIT AND FINANCE

WILLIAM B. WARTMAN, Chairman, American Board of Pathology
WALTER G. MADDOCK, American Board of Surgery

REPRESENTATIVES ON THE ADVISORY COUNCIL ON MEDICAL EDUCATION

ERNEST L. STEBBINS, American Board of Preventive Medicine
FREDERICK A. FIGI, American Board of Plastic Surgery

Examining and certifying boards in 19 specialties have been approved by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties on the basis of minimal standards governing accreditation of specialty boards as formulated by the Council.

The primary purposes of the boards are (1) to conduct investigations and examinations to determine the competence of voluntary candidates for certificates issued by the respective boards, (2) to grant and issue certificates of qualification to candidates successful in demonstrating their proficiency, (3) to stimulate the development of adequate training facilities, (4) to aid in evaluating residencies and fellowships under consideration by the Council on Medical Education and Hospitals of the American Medical Association, and (5) to advise physicians desiring certification as to the course of study and training to be pursued.

The boards are in no sense educational institutions, and the certificate of a board is not to be considered a degree. It does not confer on any person legal qualifications, privileges, or a license to practice medicine or a specialty. The boards do not purport in any way to interfere with or limit the professional activities of any licensed physician, nor do they desire to interfere with any practitioners of medicine in any of their regular or legitimate duties.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology, and pulmonary diseases. The American Board of Pediatrics certifies in allergy. Certification in the primary field is a requirement for certification in the subspecialties. The Board of Thoracic Surgery, which is organized as an affiliate board of the American Board of Surgery, requires certification in surgery as a prerequisite to certification in thoracic surgery.

Certificates in special divisions of their specialty are conferred by six boards. The American Board of Obstetrics and Gynecology will issue certificates in obstetrics or gynecology only. The American Board of Otolaryngology grants a limited certificate in endoscopy. The American Board of Pathology issues certificates in pathological anatomy, clinical pathology, a combination of these two fields, pathological anatomy and clinical microbiology, clinical microbiology and clinical chemistry, clinical bacteriology, neuropathology, and clinical microbiology. The American Board of Preventive Medicine issues certificates in public health, aviation medicine, and occupational medicine. The American Board of Psychiatry and Neurology issues separate certificates in psychiatry and in neurology, or a combined certificate for those qualified in both fields. This board also issues supplementary certificates in psychiatry and in neurology. The American Board of Radiology issues certificates in radiology, roentgenology, therapeutic radiology, diagnostic roentgenology, radiological physics, x-ray and gamma-ray physics, and medical nuclear physics.

Each of the boards has published a booklet containing a list of its officers and a brief statement of its organization, purposes, and the qualifications that determine eligibility for certification. A summary of the current data pertaining to each board and the names of its officers are reproduced in the following pages.

There is included in this section a specific statement from each of the boards regarding allowances of credit for service in the armed forces during the present emergency.

Table 1 contains a list of the approved specialty boards, the year of their activation, the number of certificates issued prior to July 1, 1954, and the total number of candidates certified to June 30, 1955. Figures are also given in these two categories showing the numbers certified in the subspecialties and finally the available figures pertaining to special certification by the boards in obstetrics and gynecology, otolaryngology, pathology, preventive medicine, psychiatry and neurology, and radiology.

On July 1, 1954, there were 56,801 physicians certified by the 19 boards. During the year July 1, 1954, to June 30, 1955, a total of 3,843 certificates were issued. Up to this latter date 60,644 physicians have been certified.

On July 1, 1954, a total of 1,362 certificates in subspecialties had been awarded. An additional 35 were awarded in the ensuing year, bringing the total number of certificates issued in the subspecialties to 1,397 on June 30, 1955. Prior to July 1, 1954, the six boards mentioned had issued 12,017 special certificates. During the year ending June 30, 1955, 858 special certificates were issued, bringing the total number awarded to that date to 12,875.

The number of specialists certified each year during the past 15 years by all boards and the cumulative totals are recorded in table 2. Up to June 30, 1955, a total of 60,644 certificates was issued. This does not represent the number of living specialists, but the total number of certificates issued.

The seventh edition of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties and published in 1955 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

CREDIT FOR MILITARY SERVICE

At the suggestion of the Joint Committee on Medical Education in Time of National Emergency, the Advisory Board for Medical Specialties conducted a survey to determine the amount of credit for service in the armed forces during the present emergency that would be given toward specialty board certification. The inquiry addressed to the boards contained the following questions:

> Will your specialty board give preference to those candidates wishing to be examined before going overseas or entering military service?
>
> How much, if any, credit toward your training and/or experience requirements will your board allow candidates while in military service?

In reply to the first question all boards answered in the affirmative. The specialty boards have not lowered their requirements because of the military emergency, but all boards except one have indicated they will grant some credit for military service. The specialty boards have indicated such allowances as follows:

TABLE 1.—*Approved Examining Boards in Medical Specialties*

Name of Board	Year of Activation	Total Certificates Awarded to July 1, 1954	Total Certificates Awarded to June 30, 1955
American Board of Anesthesiology	1937	1,185	1,324
American Board of Dermatology and Syphilology	1932	1,603	1,672
American Board of Internal Medicine	1936	9,092	9,727
American Board of Neurological Surgery	1940	533	614
American Board of Obstetrics and Gynecology	1930	4,311	4,629
American Board of Ophthalmology	1917	4,051	4,266
American Board of Orthopaedic Surgery	1934	2,392	2,550
American Board of Otolaryngology	1924	5,073	5,119
American Board of Pathology	1936	2,727	2,947
American Board of Pediatrics	1933	4,966	5,349
American Board of Physical Medicine and Rehabilitation	1947	240	279
American Board of Plastic Surgery	1937	313	337
American Board of Preventive Medicine	1948	1,335	1,421
American Board of Proctology	1949	215	231
American Board of Psychiatry and Neurology	1934	4,951	5,198
American Board of Radiology	1934	4,641	4,931
American Board of Surgery	1937	6,817	7,446
Board of Thoracic Surgery (Affiliate of the American Board of Surgery)	1949	465*	551*
American Board of Urology	1935	1,921	2,053
Totals	....	56,801	60,644
Certification in Subspecialties			
American Board of Internal Medicine			
Allergy		141	151
Cardiovascular Disease		522	561
Gastroenterology		328	343
Pulmonary Diseases		222	233
Totals		1,216	1,249
American Board of Pediatrics			
Allergy		65	67
American Board of Surgery			
Proctology		814	814
Totals		1,362	1,397
Special Certification			
American Board of Obstetrics and Gynecology			
Obstetrics		17	20
Gynecology		10	10
American Board of Otolaryngology			
Endoscopy		...	...
American Board of Pathology			
Pathological Anatomy		695	833
Clinical Pathology		262	286
Pathological Anatomy and Clinical Pathology		133	171
Pathological Anatomy and Clinical Microbiology		1	1
Clinical Microbiology and Clinical Chemistry		3	3
Clinical Bacteriology		2	2
Neuropathology		7	9
Clinical Microbiology		2	9
Hematology		...	1
Totals		1,075	1,295
American Board of Preventive Medicine			
Public Health		1,167	1,189
Aviation Medicine		168	232
Occupational Medicine		...	...
Totals		1,335	1,421
American Board of Psychiatry and Neurology			
Psychiatry		3,699	3,963
Neurology		316	332
Psychiatry and Neurology		935	903
Totals		4,951	5,198
American Board of Radiology			
Radiology		3,017	3,240
Roentgenology		915	947
Diagnostic Roentgenology		495	515
Therapeutic Radiology		152	153
Therapeutic Roentgenology		5	5
Radium Therapy		7	7
Radiological Physics		38	41
X-Ray and Radium Physics		17	17
Medical Nuclear Physics		3	6
Totals		4,649	4,931
Totals†		12,017	12,875

* Included in totals for American Board of Surgery.
† Independent board established in 1949.

Anesthesiology.—No formal training credit is granted for military service unless the physician is assigned to a service hospital with an approved residency training program. Practice time will, however, be granted for military service if the physician is assigned to the anesthesia service.

Dermatology and Syphilology.—Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit toward experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision. Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist and provided a significant portion of approved training was completed before the service concerned. The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

TABLE 2.—*Annual Specialty Board Certification, 1940-1955*

Year (Ended March)	Number of Boards in Existence	Number Certified	Cumulated Totals
1940	14	...	15,853
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,502	44,306
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486
1954 (June 30)	19	4,133	56,619
1955 (June 30)	19	3,843	60,644

* One board, the American Board of Proctology, did not certify any candidates during this period.

Internal Medicine.—Active duty as a commissioned officer in the armed forces of the United States from June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year during this interval may only be applied as practice credit on certification by former chiefs of service that assignments of candidates were in the field of internal medicine on a full-time basis in the care of clinical patients, largely on their own responsibility. Active duty in the armed forces as a commissioned officer after July 1, 1954, may not be applied as residency credit unless the candidate has served officially as a resident in a hospital approved for residency training by the Council on Medical Education in internal medicine or in the medical subspecialties rec-

ognized by this board. Active duty in the armed forces as a commissioned officer after July 1, 1954, may be applied as practice credit for one year or more on certification by present or former chiefs of service that assignments were in the field of internal medicine on a full-time basis, in the care of clinical patients largely on one's own responsibility. The requirements governing residency credit and practice credit for active duty in the armed forces from Dec. 8, 1941, to Jan. 1, 1947, will remain the same as those governing credit from June 1, 1950, to July 1, 1954, as outlined above.

Neurological Surgery.—The board makes no specific statement regarding military service. This matter is taken up individually with each applicant.

Obstetrics and Gynecology.—Credit will be given for time spent in an obstetric-gynecologic service in an Army or a Navy hospital under supervision on the same basis as a preceptorship, if these departments are supervised by diplomates of the board or recognized obstetricians-gynecologists. Full residency credit may be obtained if such hospital is approved for residency training. The board will review and give consideration to each individual case. Special request must be made for such credits.

Ophthalmology.—No stated credit. Each case is decided according to the time the candidate has spent assigned to a military hospital in ophthalmology and on other factors.

Orthopedic Surgery.—Up to one year of residency credit is given. Each case is determined on its own merits.

Otolaryngology.—Credit is given, but each case is determined on its own merits.

Pathology.—Allows liberal credit toward training when assigned to department of pathology, but candidates must first have had a minimum of one year residency in an approved civilian department of pathology.

Pediatrics.—One year of credit, regardless of assignment, toward two year practice requirement.

Physical Medicine and Rehabilitation.—Credit is given, but each case is determined on its own merits.

Plastic Surgery.—Credit is given on individual basis, considered on candidate's merits.

Preventive Medicine.—Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

Proctology.—At present no credit is granted for military service.

Psychiatry and Neurology.—For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

Radiology.—Maximum of one year's credit if assigned to full-time radiological duties.

Surgery.—If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in nonapproved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

Thoracic Surgery.—Credit for military service will be decided on an individual basis.

Urology.—No credit for training but credit for one year of practice requirement if training was complete when entering service.

Medical Officer's Professional Training Record.—The Surgeons General of the armed services have distributed a booklet prepared with the assistance of the Council and the Advisory Board for Medical Specialties that is designed to help prospective candidates for certification to maintain an accurate account of work done in the military service. This record will constitute part of the credentials to be submitted to the board on application for certification. The booklet has been printed by the Office of the Secretary of Defense and is distributed by the offices of the Surgeons General to the personnel of their departments. It is highly important that prospective applicants obtain a copy of the "Medical Officer's Professional Training Record" and that they submit their credentials for evaluation by the respective specialty board.

AMERICAN BOARD OF ANESTHESIOLOGY

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CERTIFICATION

1. *Method of Making Application.*—Application for certification may be made after a physician has completed one year of approved training. Application must be made to the secretary on a form prescribed by the board, procured only on written request of the applicant, and must be filed at least six months prior to the date of examination.

The secretary cannot make any eligibility rulings. These are made only by the entire board on recommendation of the appropriate committees after reviewing the candidate's formal application.

2. *Requirements*

A. After March 27, 1955, each applicant before he shall become eligible for certification in anesthesiology, must:

1. Have graduated from an approved medical school in the United States or Canada or have successfully completed the examinations of the National Board of Medical Examiners.

* Deceased

Applicants must have completed an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or its equivalent. Graduates of class B medical schools are not eligible to take the board examinations.

2. Establish in a manner satisfactory to the board that: (*a*) he is a physician duly licensed by law to practice medicine, (*b*) he is of high ethical and professional standing, and (*c*) he has received adequate special training in anesthesiology.

3. Submit proof to the board that he has limited his practice to anesthesiology as a specialty for five calendar years of which at least two have been in formal clinical training approved by the board and that he intends to continue to limit his practice to anesthesiology.

4. Prove to the satisfaction of the board by such written, survey, oral, and practical examinations as the board may prescribe that he is qualified to practice anesthesiology.

5. Personally prepare such case history abstracts of personally conducted procedures pertaining to anesthesiology as the board may specify.

B. Each applicant shall be classified for the purpose of examination and shall be examined in such a manner and under such rules as the board may prescribe. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

3. *Examinations*

A. Written Examination: Eligible applicants may take this examination on completion of two years of clinical training approved by the board. Written examinations are conducted every year in about 16 locations throughout the United States on the third Friday in July. Written examinations are of the multiple choice type covering the following subjects: anatomy, chemistry, physics, pharmacology, pathology, and physiology. A passing grade, as determined by the board, is required.

B. Survey Examination: Started in 1949, this examination is conducted by one or more diplomates of the board who visit the applicant in his own locality to observe him in the practice of anesthesiology. The examiner may interview other persons in the community to determine whether the candidate is of high ethical and professional standing. This examination is conducted upon completion of four years limited to anesthesiology (including two years of approved clinical training), and successful completion of the written examination. The board may require more than one survey examination.

C. Oral Examination: Upon completion of the survey examination and five years' limitation of practice to anesthesiology the candidate's qualifications are reviewed and he may be declared eligible to appear for the oral examination. However, at least six months must elapse between the written and oral examination. Examinations are conducted semiannually, in April and October. Examiners consist of directors of the board, plus diplomates who assist as associate examiners. Oral examinations cover all phases of anesthesiology, including the basic sciences and clinical applications.

D. Practical Examination: At the discretion of the board practical demonstrations may be required of the management of the candidate's clinical practice in his local surroundings. This may include inspection of clinical records, reports of departmental activities, library facilities, available apparatus and demonstrations of application of anesthetic agents, methods and all techniques included in anesthesiology. The candidate will also be appraised as to whether he is of high ethical and moral standing in his community.

Applicants are entitled to three consecutive opportunities at yearly intervals to satisfactorily complete the written examination. This three year period begins on the date an applicant is first declared eligible for the written examination.

Oral examinations are given at six month intervals. An applicant is entitled to one oral examination each year for a three year period. In the event that a candidate fails an oral examination, at least 12 months must elapse before he may reappear for the oral examination. The three year period begins on the date an applicant is first declared eligible for the oral examination.

Failure to take an examination constitutes an opportunity just as much as failure to pass an examination. However, under extenuating circumstances such as illness or military service, a candidate may obtain extension of the three year period by writing to the secretary's office prior to the expiration of the three year period.

A fee of $25 will be charged for each repeat in the written and oral examination. The board may, however, at its discretion deny a candidate the privilege of reexamination.

The board reserves the right to limit the number of candidates to be admitted to any examination.

REAPPLICATIONS

Applicants whose original applications were declared void through failure to take the written or oral examination within the three year period will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination. Applicants whose original applications were declared void through failure to pass the written or oral examination within the three year period, having taken one or more written or oral examinations, must submit proof of an additional year of approved training before their reapplications will be considered. This reapplication will be considered under the current rules and regulations, and the applicant must pay a new application fee and submit to both written and oral examination.

FEE

The fee shall be $125. At least $50 shall be paid on filing the application, of which sum $35 shall be returned if the candidate is not accepted for examination. The remainder ($75) shall be paid before taking the examination.

The board is a nonprofit organization. The fees for examination and certification have been computed on a basis of cost of maintaining an administrative office and conducting examinations. The board reserves the right to increase the fee when necessary.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

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PURPOSES

The board was formed primarily to establish standards of competence for physicians who seek recognition as specialists in dermatology and syphilology. It sets minimum requirements of education and graduate training and takes a keen interest in the development of facilities to provide this training. To this end, the board appraises institutions and persons wishing to train specialists in the field and lends its approval to those offering adequate programs. It examines and certifies qualified applicants who voluntarily comply with its requirements and supplies lists of those certified to the American Medical Association, the Directory of Medical Specialists, and other appropriate organizations and publications. The board assumes the responsibility of setting the standards to be met, but upon the candidate rests the responsibility of acquiring the knowledge to fulfill these standards.

GENERAL REQUIREMENTS FOR ELIGIBILITY FOR EXAMINATION

1. High ethical and professional standing.

2. Graduation from a medical school approved, at the time of the candidate's graduation, by the Council on Medical Education and Hospitals of the American Medical Association. Graduates of schools not on the approved list may be eligible provided they pass part 1 and part 2 of the examinations of the National Board of Medical Examiners.

3. Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council. During three years of World War II internships of nine months only were the rule and fulfilled this requirement. However, all internships completed on July 1, 1947, or thereafter must be of at least 12 months' duration.

4. A state license to practice medicine issued after examination, or by endorsement of the certificate of the National Board of Medical Examiners.

5. Citizenship in the United States or citizenship by birth in Canada or Cuba.

SPECIAL REQUIREMENTS

The following minimum requirements have been established for admission to examination:

Formal training in dermatology and related subjects of not less than three years. This training may be obtained as a resident, fellow, or graduate student in the institutions recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by the American Board of Dermatology and Syphilology. One month in each year may be taken as a vacation. Vacations may not be postponed from one year to another. Candidates will be eligible for the written examination when three full years have elapsed since the beginning of training.

The formal training shall include:

At least one year full-time in an institution approved for three year training.

Graduate training in the basic medical sciences. (They are listed in the syllabus.)

Carefully supervised clinical and laboratory work.

Annual examinations or other appraisal in the clinical and laboratory aspects of dermatology and subjects related to it.

METHODS OF TRAINING

The preferred method of training is a three year course in an institution approved for that period. However, apart from the required full-time year in such an institution, the remaining two years may be taken in institutions of lesser approval; or in part or in whole as a preceptorship (q.v.); or in half-time institutional training, the remainder being spent in practice. In the last-mentioned plan, only the institutional work is credited as training. Training must be completed within a span of five years, except where military service or other compelling circumstances shall intervene.

CREDIT FOR MILITARY SERVICE

Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit towards experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision.

Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist, and provided a significant portion of approved training was completed before the service concerned.

The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

PRECEPTORSHIP TRAINING

Candidates may take up to two years of their training under the direction of a preceptor approved by the board. Not more than half of each training day may be spent in the office of the preceptor; during the other half day supervised training must be undertaken in an approved institution. The preceptor and the chief of service of the institution are jointly responsible for this training, which must conform to a schedule that the preceptor has filed with the board. Preceptorships may be taken during any two of the years of training. A list of approved preceptors is available.

RESPONSIBILITY

It is the candidate's responsibility to make early contact with the board, to ascertain and observe its regulations, and to file the preliminary registration and the application for certification forms. Candidates should have met the General Requirements (q.v.) before applying for certification. Directors of training are responsible for submitting annual reports on their trainees. Directors should assist the board by having trainees meet the General Requirements.

PRELIMINARY REGISTRATION

Every candidate must file a preliminary registration with the board prior to or at the beginning of training, whether or not plans are complete at the time. This establishes his identity and status as a candidate, and begins his permanent file. It enables the board to detect any deficiencies in meeting the General Requirements or in the contemplated plan of training. The preliminary registration form is obtainable from the office of the board. No fee is involved at this time.

Each candidate should also request a copy of the Booklet of Information and the Syllabus of Graduate Training.

ESTIMATES OF STATUS

Many candidates write outlining their background to date and asking for an estimate of the further training needed. The board's requirements are published to provide this information. Decisions as to additional training required can be made only by the committee on requirements upon submission of the application for certification form giving details of the training undertaken. A $25 registration fee is to accompany this application. The board acts as a body and through duly constituted committees. Individual members only carry out the rules and regulations of the board.

APPLICATION FOR EXAMINATION

Application for examination may be filed before the end of the formal training period, and must be made before the closing date regularly published in the Examinations and Licensure column of THE JOURNAL of the American Medical Association. Dates of examinations, which may vary, are also published here. Applications should be filed early in order to obtain full advantage of the loan sets of histopathology slides available from the Armed Forces Institute of Pathology. No application will be considered without the accompanying registration fee of $25, which will not be refunded. When all supporting documents have been received the application is submitted to the committee on requirements, which appraises the qualifications of the candidate and decides as to his eligibility for examination. An examination fee of $75 is payable when the candidate is notified that his application is acceptable by the board.

The total fee of $100 has been carefully computed and is used entirely for administrative purposes. Members of the board receive no compensation except for actual expenses connected with the examinations.

EXAMINATIONS

Examinations are designed to ascertain the breadth of the candidate's knowledge in the basic as well as the clinical aspects of dermatology and to test his familiarity with the literature and to gauge his general qualifications as a specialist in this branch of medicine.

All applicants for certification must now pass a comprehensive written examination before they are eligible for the oral test. The written examination is held simultaneously in 20 major cities. Applicants are then required to pass the oral clinical and laboratory examination which is conducted in a clinic. Cases will be

V 1
195

seen and discussed with each candidate, and the examiners will seek to ascertain his knowledge of general dermatology as well as of various related subjects.

Candidates whose applications have been accepted may take the next examination after the completion of training. Except in special circumstances, an applicant shall take the examination within a year following the filing of application. A candidate once accepted for an examination will henceforth remain eligible for only two succeeding examinations, unless some compelling circumstance, such as military service, shall intervene.

Candidates who have signified their intention of taking the examination and who fail to appear, or who cancel their request after the final notice has gone out, shall forfeit the examination fee.

The board's records are confidential throughout. Examination marks will not be divulged to anyone. The findings of the board are subject to its discretion and are final. Applications are accepted on this understanding.

REEXAMINATIONS

A candidate who fails or is conditioned will be eligible for a second examination without further formal application, but must give at least 60 days' notice of his wish. As the cost of examination is approximately the same whether in whole or in part, a reexamination fee of $50 will be charged.

If the candidate fails to complete successfully all or part of the examination on two occasions, he must take at least six months' additional full-time training, or a year's half-time training, in an institution approved for three years, before being eligible for further examination. He must then file a new application and pay another examination fee of $75.

A candidate who fails his third examination will be eligible for a fourth examination without formal application. Notice of his intent is to be given 60 days before the examination. A reexamination fee of $50 is required.

If a candidate who has failed or has been conditioned does not appear for reexamination before the expiration of three years, he must make a new application and pay an additional fee of $75 before he can be reexamined.

CERTIFICATES

A certificate granted by this board does not of itself confer any degree or legal qualifications, privileges, or license to practice dermatology or syphilology. The board does not limit or interfere with the professional activity of any duly licensed physician. The granting of its certificate indicates that the holder has had adequate training in dermatology and has voluntarily fulfilled the requirements of the board.

A certificate is issued when the successful candidate has completed at least five years of dermatological training and experience.

Certificates are issued only to physicians who practice in the United States and its possessions, in Canada, or in Cuba.

A diplomate is to confine his practice to dermatology except for such emergency programs as have been approved in principle by the American Medical Association.

The names of diplomates are sent to the Directory of Medical Specialists, and to other appropriate organizations and publications.

Membership in the local and state medical societies as well as the American Medical Association is strongly recommended.

REVOCATION OF CERTIFICATES

The certificates issued by the board are issued subject to the provisions of its certificate of incorporation and of its bylaws, and each certificate is subject to revocation in the event that: (*a*) the issuance of such certificate or its receipt by the physician so certified shall have been contrary to any of the provisions of the certificate of incorporation or bylaws; or (*b*) the physician so certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to or could have been ascertained by the directors of the board at the time of the issuance of such certificates; or (*c*) the physician so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or (*d*) the physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the board of directors, moral turpitude in connection with his practice of medicine; or (*e*) the physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censured as a physician by any court or other body having proper jurisdiction and authority.

CHANGE IN INSTITUTIONAL STATUS

When the term of approval of an institution changes, a candidate is given credit by the board for the training year already in progress, on the prior basis. Further work will be credited according to the new status.

PRECEPTORS

A preceptor is one who takes a candidate into his office for part-time training. A dermatologist who wishes this responsible designation must be: (1) a diplomate of the board of at least five years' standing; (2) a recognized teacher of professorial rank on the dermatological staff of an institution approved for three years of training by the board; and (3) recommended as suitable by the chief of staff of that institution. He must be willing to submit regular reports on the student's training on forms supplied by the board.

ADVERTISING

It is not considered good form for a diplomate to advertise to the lay public the board's recognition of his training and ability. He should not use commercial methods and avenues. It is proper to include a statement or phrase such as "Diplomate of the American Board of Dermatology and Syphilology" in announcement cards when opening an office, or after the author's name in a medical publication when the association with a hospital, medical school, or medical society is also mentioned. If the diplomate is in doubt, it would be well to consult the board before placing his good name in jeopardy.

PUBLICATIONS OF THE BOARD

1. Booklet of Information. Every candidate should request a copy, as he will be held responsible for knowing its contents.
2. Syllabus of Graduate Training. This is designed (*a*) to inform the candidate of the field to be covered in his preparation; (*b*) to aid medical schools and hospitals by outlining the scope of teaching deemed advisable.
3. Booklet of Questions from the written examinations. $1.00.

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RESPONSIBILITIES OF THE BOARD

The major object of the board is to pass judgment on the competence of internists who desire certification—not to determine who shall or shall not practice internal medicine as a specialty.

The American Board of Internal Medicine is not concerned with any mechanism that gains special privileges or specific recognition for those physicians who have been certified in internal medicine. It has never been the intent of the board to define requirements for membership on the staffs of hospitals.

The board endorses completely the stand of the American Board of Surgery, which "specifically disclaims interest in or recognition of differential emoluments that may be based on certification."

REQUIREMENTS FOR ADMISSION TO EXAMINATION AND CERTIFICATION

Each applicant for certification by this board must satisfy the qualifications listed below: General Qualifications 1 and 2 and Professional Qualifications, paragraphs 1-10. For exceptions to the requirements 3 and 4 under Professional Qualifications see paragraph 7.

GENERAL QUALIFICATIONS

1. All candidates must be citizens of the United or Canada.

2. All candidates must present evidence of satisfactory moral and ethical standing in the medical profession.

PROFESSIONAL QUALIFICATIONS

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.

2. Satisfactory completion of an approved internship of not less than 12 months.[1]

3. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph 4.

Plan A: A residency or fellowship in internal medicine for a period of not less than three years in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association for residency or fellowship in internal medicine. In such instance in which a resident's nominal status differs from that of the other hospital residents, he must furnish the board with certification by the chief of the medical service and the medical director of the hospital that he actually performed the full duties of a resident as a bona fide member of the residency program. In addition, two years of adequate clinical experience in the practice of internal medicine following graduate training will be required. The board will accept the following equivalents as satisfying one year only of the three years of residency or fellowship to which this paragraph refers. (Two years must be in the field of general internal medicine.)

(*a*) If 12 months of a two year approved internship in a hospital approved for residency training in internal medicine is limited to the medical service and medical specialties, credit will be granted for a first year of assistant residency. The remaining two years of residency training must be in the general field of internal medicine. Certification by the chief of the medical service as to compliance with this requirement must accompany application.

(*b*) One year of approved residency in one of the medical specialties: allergy, cardiovascular disease, gastroenterology, hematology, pulmonary diseases, neurology, pediatrics, psychiatry, dermatology and syphilology.

(*c*) One year of approved residency in pathology.

(*d*) One year as a graduate student or as an instructor in an approved medical school on a full-time basis in bacteriology, biochemistry, pathology, pharmacology, physiology, or internal medicine.

(*e*) An advanced degree in the medical sciences, provided the work has been done and degree obtained after graduation from medical school.

NOTE.—Graduate training credit for the time involved will be allowed candidates who take and satisfactorily complete postgraduate courses in internal medicine or the basic medical sciences provided by accredited medical schools on a full-time basis. This ruling shall not apply to courses of less than three months' or more than 12 months' duration. A certificate of creditable performance, based in part, at least, on a formal examination on completion of the course, will be required.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in internal medicine or the subspecialties recognized by the board. This certification must be presented before application is filed.

4. Alternate Training Plans: The board firmly believes that the plan of intensive training prescribed above offers the best opportunity for a young physician to prepare himself to meet his responsibilities as a specialist in internal medicine. It is recognized, however, that capable persons may accomplish the same result in a longer period of time during which the training is less intensive. The board realizes that a number of medical graduates cannot follow the shorter and more desirable plan either because suitable residencies are not available or, in some instances, because of personal and economic reasons. Accordingly, the board has modified its previous regulations governing eligibility for admission to examination. In doing so the board has not modified its standards of examination. It has liberalized its eligibility requirements for admission to examination by accepting half-time formal training and the practice of internal medicine under favorable circumstances as to professional hospital contacts, in lieu of part of the full-time requirements. It is hoped that by this means exceptional individuals may acquire a knowledge of medicine and experience in its application sufficient to qualify for examination.

The program previously described (Plan A), which consists of three years of formal training in an approved residency or its equivalent, following internship, and followed by two additional years in the practice of internal medicine, is recommended by the board. Variations in this program are now subject to the following regulations.

(*a*) In all instances, one year of approved internship and one year of approved residency will be required, except as indicated under Plan G. The graduate training credit of one year heretofore granted as a result of active duty as a commissioned officer in the armed forces during the period beginning Dec. 7, 1941, and ending Jan. 1, 1947, and during the Korean emergency beginning June 1, 1950, and ending July 1, 1954, may not be applied in satisfaction of the one year of approved residency referred to in Plans D, E, or F unless the candidate's assignment is considered by the board to have been equivalent to an approved residency.

(*b*) Following one year of internship and two years of approved residency,[2] the remaining requirements may be satisfied by:

Plan B; that is, by two years of half-time formal training followed by two years of practice limited to internal medicine, or by

1. During the period in which the 9-9-9 program was in effect an approved internship of 9 months will satisfy the requirement of 12 months. A residency of nine months is considered as nine months only.

2. For the second year of approved residency one of the equivalents described under 3-Professional Qualifications may be substituted.

V 1
195

Plan C; that is, by five years of practice limited to internal medicine.

(*c*) Following one year internship and one year of approved residency, the remaining requirements may be satisfied by:

Plan D[3]; that is, by four years of half-time formal training followed by two years of practice limited to internal medicine; or by:

Plan E[3]; that is, by two years of half-time formal training followed by five years of practice limited to internal medicine, or by:

Plan F; that is, by eight years of practice limited to internal medicine.

(*d*) Physicians who have practiced internal medicine for 12 years following an approved internship may qualify for the examinations without further training (Plan G).

Half-time formal training under expanded plans B, D, and E is defined as follows:

(1) Half-time[3] as an instructor in clinical medicine in a recognized medical school in the United States or Canada.

(2) Half-time[3] in a research fellowship sponsored by a recognized medical school in the United States or Canada.

(3) Half-time[3] as a graduate student in an approved graduate medical school in the United States or Canada.

5. Practice Requirements: A period of not less than two years (to be completed by the time of the first written examination) of adequate clinical experience in the practice of internal medicine. This requirement may be satisfied by independent practice or in association with a recognized internist following completion of formal training.

6. Graduates of Foreign Medical Schools: All candidates who are graduates of foreign medical schools must meet the following requirements as a minimum:

(*a*) The physician must be a citizen of the United States.

(*b*) The physician must furnish proof in the form and to the extent deemed adequate by the board that he (or she) has graduated from a medical school after completing a four year full-time course in medicine.

(*c*) The physician must have a license to practice in one or more states of the United States, and have been in active practice confined to internal medicine within the state of legal residence for at least two years.

(*d*) Graduates of foreign medical schools prior to 1930 may qualify under the alternate plans of the board the same as graduates of approved medical schools in the United States.

(*e*) Graduates of foreign schools in 1930 and thereafter must, in addition to all other requirements, satisfy the requirements of one year of approved internship, and three years of approved residency or fellowship in the United States, followed by at least two years of practice limited to the field of internal medicine in the United States. If, however, their school of graduation is "recognized" by the Council on Medical Education and Hospitals of the American Medical Association, graduates of foreign schools may qualify under the various plans of the board the same as graduates of approved medical schools in the United States.

7. Candidates Graduating Prior to 1937: Candidates graduating from approved medical schools in the United States or Canada prior to 1937 may qualify for admission to examination provided their practice has been limited to internal medicine for at least two years prior to application and provided they are identified as internists by their colleagues in their community.

8. Preceptor Training: Preceptor-type training is not recognized in satisfaction of any part of the three year requirement of formal graduate training.

9. Credit for Service in the Medical Corps of the Armed Forces of the United States and Canada:

(*a*) Active duty as a commissioned officer in the Medical Corps prior to Jan. 1, 1947, may be applied as one year of residency credit or one year of practice credit, regardless of assignment. Service beyond one year may be applied as practice credit on certification of former chiefs of service that assignment were in the field of internal medicine on a a full-time basis in the care of clinical patients largely on one's own responsibility.

(*b*) Active duty as a commissioned officer in the Medical Corps from Jan. 1, 1947, to June 1, 1950, may only be applied as practice on the certification of former chiefs of service as referred to in paragraph (*a*).

(*c*) Active duty as a commissioned officer in the Medical Corps for the period June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year may only be applied as practice credit on the certification of former chiefs of service as referred to in paragraph (*a*).

(*d*) Active duty as a commissioned officer in the Medical Corps after July 1, 1954, may only be applied as practice credit on the certification of chiefs of service as referred to in paragraph (*a*).

(*e*) Residency credit automatically granted for active service in the Medical Corps of the armed forces was discontinued as of July 1, 1954.

10. Graduates of the Chicago Medical School prior to approval by the Council on Medical Education and Hospitals of the American Medical Association and graduates of the Middlesex School of Medicine who received their degree in medicine prior to Jan. 1, 1951, and who have fulfilled all of the requirements set forth under Professional Qualifications, (Requirements for Admission to Examination and Certification), and an approved residency or fellowship of three years' duration (Plan A) and two years of practice in internal medicine may apply and, at the discretion of the executive committee or of the board, be admitted to examination.

PRINCIPLES OF TRAINING

The American Board of Internal Medicine is interested in the fact that the candidate has embarked on a career of study voluntarily and has thereby expressed the desire to excel and to participate personally in the world's progress in medicine.

Preparation must be based on years of continuous thoughtful study. Therefore, in suggesting a program for those who wish advice, the board hopes to assist the candidates to avoid inferior and superficial programs that may lead to failure and disappointment in later years.

The board believes that all internists should have a sound fundamental knowledge of anatomy, bacteriology, biochemistry, pathology, pharmacology, and physiology. Such knowledge is essential to the continued progress of any internist. The board anticipates that adequate training will be obtained in the basic sciences as applied to internal medicine during a formal three year residency program.

The board wishes to emphasize that time and training are but a means to the end of acquiring a broad knowledge of internal medicine, which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge rests with the candidate. The responsibility of maintaining the standards of knowledge required for certification rests with the board.

APPLICATION

Candidates for examination must make their application on a prescribed form, which may be obtained from the office of the executive secretary-treasurer.

The application must contain a record of the candidate's premedical and medical training as well as of internships, residencies, graduate study, hospital or dispensary staff appointments, teaching positions, service in the armed forces, membership in medical societies, medical papers published, and the names of four well-known internists to whom the board may write for professional and character reference.

3. Half-time formal training is regarded as four hours per day for six days per week. It is required that halt-time formal training will be verified by the head of the department. Verification must accompany application.

The application must be accompanied by one recent, signed photograph of the candidate mounted on the application, and the registration and examination fee of $40 to cover the written examination, of which $25 will be refunded if the application is disapproved. Upon application for admission to the oral examination, an additional fee of $50 will be required. Upon notification of certification by the board, a further fee of $10 to cover cost of certification will be required.

The requirements of graduate training and two years of practice in the field of internal medicine must be satisfied before a candidate is eligible to apply for admission.

If three or more years elapse before a candidate completes his certification, the board will require the candidate to file a new application.

METHOD OF EXAMINATION—WRITTEN AND ORAL

The examination for certification by the board comprise two parts: part 1 is written; part 2 is clinical and is an oral examination. The written examination is held simultaneously in different sections of the United States, Canada, and outside continental limits of the United States wherever eligible candidates are located. Only one written examination will be given each year. This examination will be held on the third Monday in October. This examination is divided into a morning and afternoon period for each of which three hours are allowed. The questions are of the multiple choice type, framed in such manner as the board elects, and designed to test the candidate's basic clinical acumen and his knowledge of applied physiology, anatomy, physiological chemistry, pathology, bacteriology, and pharmacology as related to internal medicine.

Candidates must pass the written examination before admission to the oral examination will be authorized. Oral examinations are held near the time and place of the annual meetings of the American Medical Association and the American College of Physicians and at such other times and places as are necessary. Announcements of all oral examinations will appear in the *Annals of Internal Medicine* and THE JOURNAL of the American Medical Association. Applications cannot be accepted until the schedule is announced in the publications referred to and cannot be accepted after the closing date as announced.

The oral examination will be conducted under the direct supervision of the board. It will be given by members of the Board of Internal Medicine with the assistance of such guest examiners as may be selected. Oral examinations are conducted at the bedside of each of two patients previously assigned to each candidate. Forty-five minutes will be allowed for the examination of each of the patients before the candidate is examined orally. Candidates will be expected to present in a concise, orderly fashion pertinent facts in the history and diagnosis. Demonstration of important physical findings will be requested by the examiner. During the oral examination questions will be asked concerning diagnostic and therapeutic procedures related to the problems under discussion and to any other aspects of internal medicine. Conciseness and clarity of statement as well as evidence of clinical maturity will be searched for, in addition to factual knowledge. Furthermore, the candidate should be prepared to demonstrate his ability to interpret objective demonstrations of roentgenologic, pathological, hematological, electrocardiographic, and other abnormalities.

REEXAMINATION—WRITTEN AND ORAL

A. *Written Examination*

1. The interval between the first and second written examinations will be not less than one year.
2. The interval between the second and third written examinations will be not less than two years.
3. The interval between all written examinations that may be permitted after failure of a third written examination will be two years. Admission to any subsequent written examination after failure of the third one may be granted at the discretion of the board.
4. A fee of $25 is required for each written reexamination. This fee is due upon application for reexamination.

B. *Oral Examination*

1. The interval between the first and second oral examinations will be not less than one year.
2. The interval between the second and third oral examinations will be not less than two years.
3. A candidate who fails the oral examination for the third time will be required to pass the written examination again before further oral examinations are permitted. Having done this, he becomes subject to the same regulations and priorities in respect to the oral examination as apply to candidates who pass the written examination for the first time.
4. A fee of $50 is required for each oral reexamination. The fee is due upon application for reexamination.
5. The effective date of the changes referred to governing readmission to written and oral examinations will be Jan. 1, 1956.

NOTE.—Candidates are not required to repeat the examinations within the specified time limits. A longer interval may be elected between both written and oral examinations. Candidates who elect an interval of three years or more between examinations must file new applications.

CANCELLATIONS

A candidate who cancels his assignment for a written or an oral examination after cards of admission are mailed will be required to pay a special fee in the amount of $10 before a subsequent examination, unless his cancellation was due to personal illness or that of immediate family. This provision becomes necessary because of the large number of cancellations after complete arrangements have been made, and the expense incident thereto.

CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the bylaws and shall be signed by the officers and members of the board and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and oral examinations and have been officially certified by the board.

SUBSPECIALTY BOARDS

Allergy, cardiovascular disease, gastroenterology, and pulmonary diseases are recognized subspecialties.

Each subspecialty application is individually considered and acted upon by the subspecialty board concerned. The candidate is not eligible for examination until his application has been approved by the subspecialty board concerned and confirmed by this board. Please see Internship and Residency Number of THE JOURNAL of the American Medical Association for statement of requirements.

All candidates must pass the written and oral examinations in internal medicine before admission to examination in a subspecialty of medicine referred to. The subspecialty examinations are oral only and may be taken at a scheduled subspecialty examination subsequent to the candidate's certification in internal medicine. Announcement of the subspecialty examinations will appear in THE JOURNAL of the American Medical Association and the *Annals of Internal Medicine*.

Upon request to the office of the executive secretary-treasurer application forms will be forwarded and should be returned to his office when completed.

INFORMATION ON CERTIFICATION IN ALLERGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Two years, full time, including training both in allergy and internal medicine in an approved allergy clinic and hospital; or

2. One year, full time, including training in allergy and internal medicine in an approved allergy clinic and hospital, and two additional years of attendance and participation at least two half days weekly at an approved allergy clinic; or

V 1
195

3. Five years of attendance and participation at least two half days weekly at an approved allergy clinic; or

4. Twelve years in the practice of allergy after fulfilling the professional qualifications for certification in internal medicine, with evidence of sustained scientific interest.

5. All candidates who desire consideration in allergy must be certified in internal medicine before applying for admission to examination in allergy.

The candidate should be prepared for oral and clinical examination in the anatomy, pathology, physiology, and biochemistry of reactions of hypersensitivity. This will include immunology, immunochemistry, atopy, allergy of infection, collagen disease, and experimental hypersensitivity. He should be proficient in clinical diagnosis, laboratory procedures, and in the treatment of allergic diseases. He should be familiar with the physiology of respiration, especially as modified by bronchial asthma and pulmonary emphysema and with the pharmacology of drugs used.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in allergy recognized by the board. This certification must be presented before the application is filed.

RECOMMENDATIONS OF THE SUBSPECIALTY BOARD ON CARDIOVASCULAR DISEASE CONCERNING QUALIFICATIONS OF CANDIDATES FOR CERTIFICATION IN THIS SUBSPECIALTY

The applicant should be of good character and excellent standing in his community, as attested by letters from sponsors of known integrity.

The applicant should have reached a state of maturity compatible with the acquisition of sufficient factual knowledge and experience to form a basis for sound judgment. The board believes that only exceptional persons are sufficiently mature for this subspecialty before the age of 35 years or less than 10 years after graduation from medical school.

The board will make exception to this general rule of admission to examination, under unusual circumstances, largely to avoid injustice to the younger men of outstanding ability.

The candidate must have given clear evidence of his deep and constant interest in cardiovascular disease over a period of years. The board is particularly interested in recommending for examination those applicants whose records indicate that their interest in cardiovascular disease will probably be sustained throughout life, and that their knowledge of the subject will constantly grow. Achievements in the field of research are regarded as evidence of such interest, but publication of articles or prolonged training in research work is not considered essential. Consideration will be given to the circumstances of each applicant's training and experience; those who have been in communities and institutions that offered excellent opportunities for contributions to the knowledge of cardiovascular disease will be expected to have made such contributions. Consideration will be given to the difference in experience of those whose opportunities for research have been more limited.

In most cases, it is deemed essential that the candidate, after thorough training in internal medicine, shall have received at least one full year of postgraduate education in cardiovascular disease, preferably under the guidance of a person known to be experienced and sound. Qualifications will be appraised by the cardiovascular board and admission of the applicant to the examination will be determined by a majority opinion of the board.

Every candidate admitted to the certifying examination in cardiovascular disease will be expected to possess specialized knowledge of the kind indicated below. This list is by no means complete; it is intended to indicate the nature, rather than the extent, of the knowledge every applicant should have. In terms of its scope it should be regarded as the minimum, not the maximum. Persons possessing special knowledge and training in peripheral vascular disease may be expected to have a higher standard required in the examination in that portion of the field than in the certain details of other branches of cardiology, and the converse may be similarly applied.

1. Full and accurate knowledge of the anatomy of the normal and diseased heart, including its relationships to the external chest and to the other mediastinal structures. A comprehensive anatomic knowledge of all important blood vessels including their aberrant locations.

2. A thorough knowledge of the normal and pathological physiology of the heart and peripheral circulation.

3. Detailed knowledge of the diagnostic signs that permit the recognition of all important diseases of the heart and blood vessels, such as arteriosclerosis, arteriosclerotic heart disease, syphilitic heart disease, rheumatic heart disease, constrictive pericarditis, auricular and ventricular septal defects, coronary thrombosis with myocardial infarction, thromboangitis obliterans, Raynaud's syndrome, coarctation of the aorta, aneurysm, patent ductus, arteriosus, periarteritis nodosa and lymphedema.

4. Familiarity with the special methods used in the study of diseases of the heart and blood vessels. In the case of the heart, these include such techniques as electrocardiography, roentgenography, catheterization and angiocardiography; in the case of vascular disease, such techniques as the use of the oscillometer and thermocouple, arteriography, and venography, reflex vasodilatation, the cold pressor test, color changes with evaluation, dependency, temperature, etc.

5. Accurate knowledge of the pathological changes associated with the more important diseases of the heart and blood vessels, sufficient to enable the candidate correctly to evaluate the pathological condition from gross specimens or microscopic sections.

6. Fairly extensive and detailed knowledge of the pharmacology relating to heart and blood vessels. This must include full knowledge of the important relationship of the autonomic nervous system both to the heart and to the peripheral vessels, and the effects of stimulation or paralysis of the various parts of the autonomic system by drugs or by surgical methods. The candidate should be intimately familiar with the use and effects of such important drugs as digitalis, quinidine, heparin, papaverine, epinephrine, dicumarol, penicillin, diuretics, sedatives, etc.

7. A sound understanding of the indications for conservative therapy, as well as for surgical procedures, in cardiac and peripheral vascular diseases (patency of the ductus arteriosus, arteriovenous anastomoses, constrictive pericarditis, scalenus, anticus syndrome, etc.).

In summary, it is the desire of the American Board of Internal Medicine and its Subspecialty Board in Cardiovascular Disease that physicians shall not be admitted to the certifying examinations unless they have exceptional qualifications as individuals and as experts in this subspecialty of medicine.

INFORMATION ON CERTIFICATION IN GASTROENTEROLOGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

A. Professional Standing

The candidate must have at least two letters from recognized internists or gastroenterologists, which must attest to the candidate's professional qualifications and ethical standing, whether he is specializing in gastroenterology and if not entirely, giving an opinion as to approximately how much of his work is devoted to it.

B. Education

1. The candidate must admit proof of adequately supervised training in the recognized gastroenterologic procedures, including gastric and hepatobiliary function tests, proctosigmoidoscopy and gastrointestinal roentgenology (film interpretation).

2. The candidate must present evidence of fulfillment of one of the following requirements:

(*a*) Formal graduate course in gastroenterology, full time for at least eight months in a recognized institution.

(*b*) Residency or fellowship for at least one year in gastroenterology under tutelage of a recognized specialist.

(*c*) In the absence of (*a*) and (*b*), attendance and active participation in a ward service or in a gastrointestinal clinic, recognized in standing, for at least five years.

3. If requirements (*a*) or (*b*) under the above heading have been met, only three years of (*c*) will be required.

C. Practice

At least 60% of the candidate's work must have been devoted to gastroenterology for at least three years before application.

INFORMATION ON CERTIFICATION IN PULMONARY DISEASES BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Candidates for certification in pulmonary diseases shall fulfill the requirements of the American Board of Internal Medicine as to:

(*a*) General qualifications.

(*b*) Professional education.

(*c*) Special training.

2. In addition to the general requirements of the American Board of Internal Medicine, candidates shall:

(*a*) Have completed a special training period in pulmonary diseases to include at least a year's work in a sanatorium or hospital for tuberculosis and at least another year in the practice of pulmonary diseases in such an institution or in association with an older man competent in this field.

(*b*) Submit an application to the advisory board in this specialty, which must be approved by all of the members of this board.

(*c*) Pass the written and oral examination of the American Board of Internal Medicine.

(*d*) Pass the oral and practical examination in pulmonary diseases.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

FRANCIS C. GRANT, Chairman, Philadelphia.
HOWARD A. BROWN, San Francisco.
GEORGE BAKER, Rochester, Minn.
ELDRIDGE CAMPBELL, Albany, N. Y.
WILLIAM V. CONE, Montreal, Canada.
FRANC INGRAHAM, Boston.
EDGAR KAHN, Ann Arbor, Mich.
A. EARL WALKER, Baltimore.
JAMES C. WHITE, Boston.
EDGAR FINCHER, Emory University, Ga.
LEONARD T. FURLOW, Secretary-Treasurer, Washington University Medical School, St. Louis.

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the board of directors.

2. It shall be discretionary with the board to accept for examination candidates who have been in practice more than six years but whose formal training fails to meet the full requirements.

3. Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in neurological surgery in the United States of America or Canada may apply for certification by the American Board of Neurological Surgery.

4. A special certificate may be issued to foreign (not United States of America or Canadian citizens) candidates who have received their training in neurological surgery in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examinations of this board, without completion of the requirement of two years in the practice of neurological surgery. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board.

PRELIMINARY PROFESSIONAL STANDING

1. Graduation from a medical school that is acceptable to the American Board of Neurological Surgery.

2. Completion of a surgical internship of not less than one year in a hospital acceptable to the board, or its equivalent in the opinion of the board. (A one year rotating internship does not satisfy this requirement.)

SPECIAL TRAINING

A period of graduate study of not less than four years beyond the year of general surgical training in an approved hospital, or in a recognized graduate school of medicine acceptable to the American Board of Neurological Surgery. Of this training period, at least 30 months must be devoted to clinical neurological surgery. The training in clinical neurological surgery must be progressive and not obtained during repeated short periods in a number of institutions. It is preferable that at least two years of this training be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year.

Furthermore the candidate must prepare himself to pass a board examination in general surgery, organic neurology, neuropathology, neuroanatomy, neurophysiology, neuro-ophthalmology, and neuroradiology.

An additional period of not less than two years of satisfactory independent practice of neurological surgery.

The above represents only the minimum requirements of eligibility for examination for certification by the board.

APPLICATIONS

An application on the official application blank in such form as may be adopted from time to time by the board of directors, in order to be considered at any meeting, must be in the hands of the secretary-treasurer of the board not less than six months before the date of such meeting.

The secretary-treasurer of the board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary-treasurer may deem desirable, after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary-treasurer its recommendation whether or not the applicant is acceptable. The certification of a candidate shall be approved by a majority of the members of the entire board at any meeting held for such certification.

PAYMENT OF FEES

The fee for certification, with or without examination, shall be $100.

The candidate for examination on filing his application shall accompany it with an application fee of $25. When notified by the secretary-treasurer that he is eligible for examination he shall send the examination fee of $75 to the secretary-treasurer at least two weeks before the date of the examination.

REEXAMINATION

A candidate who has failed in one examination is eligible for reexamination in the subject, or subjects, in which he failed within three years, on payment of a reexamination fee of $25. A candidate who has failed in one examination and who does not apply for reexamination within three years, or a person who has applied within that time but who has failed a second time, will be considered a new applicant.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

WALTER T. DANNREUTHER, President, New York.
F. BAYARD CARTER, Vice-President, Durham, N. C.
ROBERT A. KIMBROUGH, JR., Vice-President, Philadelphia.
WILLARD R. COOKE, Galveston, Texas.
DANIEL G. MORTON, Los Angeles.
JOHN L. PARKS, Washington, D. C.
HERBERT E. SCHMITZ, Chicago.
ROBERT L. FAULKNER, Secretary-Treasurer, 2105 Adelbert Rd., Cleveland 6.
LAWRENCE M. RANDALL, Assistant Secretary, Rochester, Minn.

REQUIREMENTS

Each applicant before he may become eligible to receive such certificate or other evidence of recognition:

1. Must have had conferred on him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

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195

2. Must establish in a manner satisfactory to the board of directors that he is a physician duly licensed to practice medicine in the United States or Canada and is a member of his county or district medical society, and

(*a*) that he is of high ethical and professional standing.

(*b*) that he has received at least minimal training bilaterally, i. e., in both obstetrics and gynecology. Training in one branch only is no longer sufficient for qualification. The term "minimal training" as used here is at present defined as meaning at least one year of full-time formal training, in the branch of either obstetrics or gynecology relegated to a minor role in a candidate's training program as related to his preference and plans for practice. The required total of formal residency training is three years.

(*c*) that physicians otherwise qualified, who were graduated before Jan. 1, 1939, and whose required training was in obstetrics or gynecology alone, and who have confined their practice to obstetrics or gynecology for at least five years immediately prior to application, be accepted for examination as candidates for certification in either obstetrics or gynecology. In all other respects requirements for eligibility remain the same as for those physicians graduated since 1939. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch.

3. Must make application for investigation of his credentials and a survey of his character.

4. Must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so, except for possible military duties. Candidates must have been in practice limited to the specialty for two years, following completion of their specialty training.

This board will not accept applicants for examination who are not full citizens of the United States or of Canada, though they may be residents of either country. Foreign-born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, not original citizenship papers, must be furnished when the application is filed attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born. Further, there will be required a probationary period of at least three years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted to examination.

Applicants who have been certified by one of the other American specialty examining boards will not be eligible for certification by this board until they have relinquished the certificate previously conferred, except upon special action to the contrary taken by the American Board of Obstetrics and Gynecology.

The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology, except by special ruling when this is related to active military duty.

This board deprecates engagement in fields of practice other than that in which candidates profess to be specialists. The board does not exclude from examination, however, obstetricians-gynecologists who practice abdominal surgery and urology in the female because of the correlation of these activities. The sole exception to this provision is that it is permissible for candidates of the American Board of Obstetrics and Gynecology to participate in emergency care plans operated under the auspices of district, county, or state medical societies.

Military service or any other similar patriotic service, such as work with Selective Service boards, etc., have not been construed as nonlimitation of practice in violation of the board regulations. Officers (regular or reserves) certified by this board and on duty with "Family Dependent Services" are expected to be permitted to limit their work to the specialty, as in civilian life, and not be engaged regularly in general or other practice.

The minimal requirements for all candidates will be uniform as follows:

1. Completion of at least one year intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association. This need not be a general rotating internship, although this latter is preferred.

The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation.

2. A minimum of seven years of training and practice after the first intern year, to include at least three years of residency training in clinical obstetrics-gynecology in approved institutions, or adequate preceptorship training. (See section on Preceptorship Training.) Following completion of acceptable training two years of post-training practice limited to the specialty are required.

The Council on Medical Education and Hospitals of the American Medical Association listed for the first time in 1950 (*J. A. M. A.*, April 15, 1950, pages 1216, 1204-1211), 149 inspected and approved one year residencies in general surgery "as offering training in general surgery . . . in preparation for residencies in surgical specialties." Such residencies are recommended by this board as desirable additional preparation, particularly when they provide opportunities for training in abdominal surgery. (See Internship and Residency issues of THE JOURNAL for lists.) As noted above, such service may be included in the total minimal eight years required after graduation.

Post-training practice period may include full-time medical school or other positions within the specialty, and actual practice within the specialty as an assistant, associate, or independently.

Periods of residency in obstetrics-gynecology in excess of the required three years will not be accepted as a substitute for any part of the two required years of post-training practice except in the cases of men advancing from their residency training into and planning to remain in full-time teaching positions in medical schools and their affiliated hospitals.

3. Basic science training should emphasize the relation of the basic sciences, anatomy, pathology, physiology, biochemistry, and bacteriology to the application of surgical principles which are fundamental in all branches of surgery. More especially, for this specialty there should be training in infertility, endocrinology, oncology, irradiation therapy, electrotherapy, psychosomatic medicine, and other nonoperative methods of diagnosis and treatment. In addition, the candidate must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, and so on.

Studies in the basic sciences may be integrated with the clinical work or may be given separately.

SPECIAL CREDITS AND RULINGS

The board conformed with the general acceleration in programs in medical education in that it will accept a period of nine "accelerated" months as an academic year in satisfying the requirement for each of three years of residency training. Such allowances can be made only for services during the wartime period of the official "accelerated program" and are not made for services before 1943 or after the discontinuance of this acceleration in 1946.

No formal graduate courses are required. If taken, credit will not exceed six months. Fellowships will be evaluated individually for credits by the credentials committee.

An applicant serving under military orders in an Army or a Navy hospital in an obstetric-gynecologic service under supervision may be given the same credit as if he were working under a preceptor, if these departments are supervised by diplomates of this board or recognized obstetricians-gynecologists. He may obtain full residency credit if such hospital is officially approved and listed for residency training in this specialty. The credentials committee of the board will review and give consideration to each individual case. Special request must be made for such credits.

A blank log-book entitled "Medical Officers Professional Training Record" is obtainable from the offices of the Surgeons General. This record should be carefully kept and attested while in military service.

APPLICATION AND FEES

Application must be made on a special blank which will be furnished by the secretary's office and must be forwarded with the other required credentials and the application fee to the secretary's office not later than Oct. 1, 1955.

Candidates currently applying for admission to the examinations for certification are required to submit with their application a plain typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application, with the diagnosis, pathological diagnosis, nature of treatment, and end result.

The application fee is $25 and is not returnable.

The examination fee is $100 and is payable when the candidate is notified of acceptance for examination. This fee is not returnable after the candidate has been officially accepted by the credentials committee and notified to report for examination.

If the candidate fails the part 2 examination on his original application, he may exercise the privilege of one reexamination (See Examinations, Part 2) but he will be required to pay a fee of $25 for such reexamination on making request that his application be reopened for this purpose. This ruling is effective on applications originally made after June 1, 1949.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners and associate examiners serve as such without compensation other than actual expenses.

Many prospective candidates write the secretary's office outlining in their letters their training qualifications and asking informally if they are eligible, if this training has been sufficient and, if not, what is still lacking. Any candidate should be able to make a fair estimate of his eligibility after studying these requirements.

Individual officers and directors cannot and will not make any such estimates or rulings. These are made only by the credentials committee after reviewing such requests made on a special form provided for this purpose, and submitted to the secretary for an appraisal with the fee of $15 to cover clerical expenses involved. This form is designated the "Application for Appraisal of Incomplete Training."

Personal interviews cannot be granted by the secretary or other directors of the board unless requested by the board.

Appraisal of Incomplete Training Forms should not be filed if application for certification has already been filed. This is unnecessary duplication.

All candidates must comply with the board regulations in effect for the year in which the examination is taken, regardless of when the original application was filed.

Applicants declared ineligible for admission to examination may request reopening of their applications within two years of the filing date without payment of an additional application fee. When a candidate requests that his application be reopened, he must supply the board with information to justify such further consideration. A request for the reopening of an application declared ineligible by reason of insufficient training, nonlimitation of practice, or similar items may not be approved in less than two years, although application may be made as specified above to avoid payment of an additional fee. This approval time may be reduced under exceptional circumstances. The request must have adequate supporting evidence of additional training and experience to warrant reconsideration. Preceptorship or Supplemental Training Blanks should be used for such reports, and these will be supplied on request.

After two ineligibility or postponement rulings on any candidate's application, an entirely new application must be submitted (with or without fee, according to current requirements) in order to bring data down to date. The essential feature of this should be evidence of additional training and experience.

Applicants declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application are required to file a new and current application and to pay a new application fee.

Candidates should offer as sponsors or references two diplomates of this board with whom they are presently in contact, rather than men under whom they served as residents only. It is required that sponsors be from the candidate's community and currently acquainted with the candidate and his ability in his practice of the specialty.

On notice of acceptance for admission to examination, examination fee is due and also case records, which should be shipped by the candidate to the secretary's office as soon as possible and not later than the date of the part 1 written examination.

The candidate should make immediate acknowledgment of his notice of acceptance, at which time he will notify the secretary's office about when to expect his case reports.

EXAMINATIONS

Part 1 examinations are scheduled annually for early in February. The results cannot usually be mailed from the secretary's office until after April 1 following the examination. Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination, which will be sent out from the board's office under sealed cover.

Special arrangement will be made through senior officers for conducting the written portion of the part 1 examination for men in military service. Such candidates are requested to keep the secretary's office informed at all times of changes in their mailing addresses.

All applicants accepted for examination will be required to obtain a passing grade in both the written examination and a review of case reports (part 1), before becoming eligible for the oral-clinical and pathology examinations (part 2). The passing grade for the written examination and case reports is 75%. A candidate whose grade in either or both falls below 75% is conditioned.

Reexamination for the removal of conditions in part 1 may be taken after one year but within three years after the first failure, without payment of an additional fee.

Application for reexamination in part 1 must be made by the candidate prior to Nov. 1 of any year.

Requests for reexamination in the written portion of part 1 and requests for resubmission of case reports must be filed prior to Oct. 1, 1955.

Candidates who successfully complete the part 1 examination proceed automatically to the part 2 examination held later in the year.

Requests for reexamination in part 2 must be made prior to Feb. 1, 1956.

Candidates appearing for reexamination under a new application after two previous failures will not be required, if they have passed all or part of the part 1 examinations on their first application, to repeat such examination items already successfully cleared.

Part 1.—Examination consists of:

1. A comprehensive written examination, conducted annually, including questions on both obstetrics and gynecology and related basic sciences. The written examination will be limited to a maximum period of three hours.

2. The filing, as early as possible, and not later than the date of the written examination, of 20 obstetric and gynecologic case reports, in condensed form. (See sections on Case Reports.)

Results on case reports submitted for review prior to the written examination will be announced simultaneously with those of the latter; candidates who take the written examination but fail to submit case reports on or before the date of the written examination cannot be given the grade on the latter until their case reports have been received and graded.

Part 2.—The oral-clinical and pathology examinations given all candidates are conducted by the entire board and the associate examiners. Advance announcements of examination dates and place will be made in medical journals throughout the country. (Scheduled for Chicago, May 11 to 20, 1956.)

Examination consists of:

1. Oral examination before two or more examiners.

An endeavor is made to adapt the details of the oral examination to each candidate's experience and practice. The examination is particularly directed to ascertain his familiarity with recent obstetric and gynecologic literature, the related basic sciences, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2. Pathology examination.

The candidate is expected to identify and to discuss several obstetric and gynecologic pathological specimens and microscopic sections.

Examiners report orally on each candidate to the assembled board, after which the results of their investigations are considered jointly by the entire board and associate examiners. After a general consideration of the details of the candidate's oral and pathology examinations, including a review of his capability and general adaptability, the candidate is passed or failed by the entire board of directors.

The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

When a candidate fails in part 2 of the examination, he is not required to repeat part 1 but is required to repeat part 2 only. One reexamination may be taken within three years of the original examination and first failure without formal reapplication papers. Requests for reopening of the candidate's original application must be filed with a reexamination fee of $25 (See Application and Fees). Application for reexamination in part 2 must be made by the candidate prior to Feb. 1 of any year. Data regarding additional training or experience and medical school or hospital appointments acquired in the interim must be cited in the letter and verified on a Supplemental Training Form obtained from the office of the secretary of the board.

The reexamination fee will be effective only on original applications filed subsequent to the date of this announcement, namely, June 1, 1949.

The candidate may be allowed to reappear at the examination following the one failed by him. The board may, at its discretion, deny the candidate the privilege of reexamination.

Failure to exercise the privilege of reexamination within three years entails the filing of a new application with the usual application and examination fees.

After two failures in either part 1 or part 2 on the first application, the candidate may reapply with a new application and reapplication fee of $25 and reexamination fee of $100 and be readmitted to examinations once only. Exceptions to this ruling can be made only by action of the entire board of directors in annual session, usually to be based on evidence of additional training and experience sufficient to warrant such action.

CASE REPORTS

Case reports are to be sent by the candidate to the secretary as soon as possible after receiving notification of eligibility, and not later than the date of the part 1 written examination.

In the case of candidates applying for unilateral certification, case reports must pertain to the branch for which application is made.

Twenty important obstetric and gynecologic case reports, in condensed form, are required. Five cases may concern major illnesses, not necessarily operative. These reports must include a variety of material rather than a number of reports of one type. Case reports from one residency's service shall not be more than five in number.

Men holding full-time medical school faculty appointments may submit the remainder of their case records from this full-time, non-private practice, but post-training service. (See Requirements.)

The candidate should prepare and maintain in his possession a carbon copy of his case records in case of possible loss in shipping.

Evidence of adequate follow-up examination pertinent to each individual case must be submitted.

The candidate should submit separate verified index lists, in duplicate, for each individual hospital at which operations were performed. All of these must be formally signed by the responsible hospital official (preferably the hospital superintendent), attesting in each instance that the candidate was the operator.

In the upper left-hand corner of each index sheet there should appear:

Candidate's name; and name and address of hospital.

The data for each patient should be tabulated horizontally, reading thus:

1. Sequence number of case report (1 to 20).

2. Whether patient was from the candidate's residency service or his own private or ward practice, as follows: "Res. Serv." or "Own Practice." All records failing to have this information will not be considered acceptable.

3. Patient's name or identifying initials, age, parity.

4. Date of patient's admission and hospital admission number.

5. Date of patient's operation.

6. Date of patient's discharge.

7. Dates of follow-up examinations.

At the foot of each index sheet should be placed the attested statement of the hospital official, referred to above. This statement should read as follows:

This is to certify that the above listed case reports have been verified by me from the records of this hospital and these patients operated upon in this institution by Dr.————————; that the admission number and dates specified are correct. This is further to certify that the reports given the following sequence numbers (———— to ———— inclusive) were from the residency service of the afore-mentioned physicians and the reports given the following sequence numbers (——— to ——— inclusive) were from his own practice (ward or private) in this hospital and that in all instances he was the chief operator.

.....Signature

.....Official Title

Date.....

Each case report should be typewritten on standard size paper, 8½ x 11 in., and those reports then assembled in sequence. Covers should not be used for separate reports, as this increases their bulk unduly. Reports should be bound loosely together in a light outside cover not larger than 10 x 12 in., so that they may be opened and held like a book. The following items should be observed:

I. Each case report should be headed by identifying information corresponding with that of the index lists, including sequence number, designation as a "Residency" or "Own Practice" case, and so on.

II. The report of the case should begin with:

1. Preoperative diagnosis.
2. Postoperative diagnosis (based on findings).

III. The report should be in condensed form, not reported in detail. Follow-up findings of not less than six months are essential. Omissions of follow-up examinations must be explained and justified.

IV. Obstetric reports that do not include essential pelvic measurements and note of methods used, will be considered incomplete. Surgical reports should contain description of the operation and the reason for selection of the procedure.

V. Each report should conclude with a critical analysis. When this is omitted the report will be considered incomplete and will not be acceptable.

GRADUATE TRAINING RESIDENCIES

This board, through the Council on Medical Education and Hospitals of the American Medical Association, has approved institutions providing acceptable residencies in obstetrics and gynecology.

The American Board of Obstetrics and Gynecology has established the following requirements for its approval of a residency in a hospital department or service:

1. It is most desirable that the chief of service of the department be certified by the board, in the interests of the proper teaching of the specialty of obstetrics and gynecology. In lieu of such certification the board will approve of persons of recognized high professional standing in the specialty. At least one additional senior member of the staff should be similarly qualified.

2. Exceptions to the foregoing, in respect to the certified status of chiefs of service and others as outlined above, can be made by assent of the committee on residency training for adequate and justifiable reasons. As examples of the latter, the degree of F.A.C.S. in obstetrics-gynecology may be accepted in

lieu of one of the two required certifications if the general reputation of the person concerned is known to the committee as national or sectional in scope, or a professorial rank without certification might be acceptable.

3. In instances where the services of obstetrics-gynecology are not combined but are separate in any given hospital, the chief of each such service seeking approval and at least one of his subordinates must be certified or otherwise qualified as outlined above.

If obstetrics and gynecology are not combined in one department, approval can be granted only if arrangements are made for some degree of rotation of residents between both services, provided both services are separately approved.

4. If gynecology is classified in the given hospital as a subdivision or subservice of general surgery, approval cannot be granted for residency training in gynecology. Exceptions have been made if the subdivision of gynecology is headed and staffed by a chief and at least one other certified by this board or otherwise qualified as specialists in obstetrics-gynecology, as specified above, thus insuring an acceptable educational program in obstetrics-gynecology.

5. Departments holding official approvals for residency training are cautioned that their totals of residents appointed must be kept to the number specified in the A. M. A.—American board approval notification. Dilution of training facilities by unauthorized appointment of residents in excess of these numbers may be cause for reinspection and changes in approval status of such hospitals and their special services.

6. For further details of requirements and qualifications for approval for residency training, hospital officials should refer to the latest special issues of THE JOURNAL of the American Medical Association as they appear during each year, dealing with these subjects, or should apply to the Council on Medical Education and Hospitals of the American Medical Association for bulletins entitled Essentials of Approved Residencies and Fellowships.

7. Application for residency approval must be made in triplicate on special forms provided for this purpose. These forms may be obtained from the secretary of the Council on Medical Education and Hospitals of the American Medical Association. All statements amplifying an application should also be made in triplicate. The hospital should keep a duplicate of all papers.

8. The formal application, with all papers, for residency training approval should be submitted primarily to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Action is taken jointly by the Council and this board after survey by the Council.

9. Approvals are granted according to adequacy of the training program and teaching facilities of various institutions on the following several bases: (*a*) one-year approval in obstetrics and gynecology (combined) or one-year approval in obstetrics and/or in gynecology (separate), correlated basic science instruction being an essential part of the first year; (*b*) two-year approval in obstetrics and gynecology (combined) or two-year approval in obstetrics and/or in gynecology (separate), provided there is opportunity in the latter instances for some degree of rotation between the two services as well as laboratory instruction in basic sciences; (*c*) three-year approval in obstetrics and gynecology (combined) or in obstetrics or in gynecology, provided there is opportunity for one to one and one-half years' service in the branch of the specialty opposite to that in which the candidate holds appointment, as well as laboratory instruction in the basic sciences of both branches.

Exchange residencies within the specialty between approved institutions are acceptable and to be encouraged. Many authorities believe that training in more than one institution is broadening to the candidate. "Farming out" to unapproved institutions or services is not acceptable unless the work of such services is directly and carefully supervised by the chiefs of the service in the approved hospital under which the man is actively appointed and working. This should be attested by such chiefs.

Exchange residencies into other specialties cannot be permitted to subtract from the minimal required three years of training divided between obstetrics-gynecology.

As noted elsewhere, two years of post-training practice limited to the specialty is necessary before a candidate becomes eligible for certification.

This board has no objection to residency services being arranged by hospitals for periods longer than three years, unless this dilutes the candidate's clinical training opportunities too much during the first three years. However, the board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two years of post-training practice. The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community.

Exception to this ruling may be made for men advancing from their training into and planning to remain in full-time teaching positions. These men then must complete at least two years in such positions. Consequently the only institutions in which men may work as fourth and fifth-year residents and obtain credit for this time as "post-training practice" are those directly affiliated with approved schools of medicine as teaching hospitals for undergraduate instruction. These "full-time" men must hold faculty appointments, must have teaching duties with undergraduate students, must be given independent authority more than that of residents, and must make a declaration of intention to remain in full-time teaching work.

10. Any physician formally obligating himself to serve a residency in a Council on Medical Education and Hospitals of the American Medical Association-American Board of Obstetrics and Gynecology approved hospital and thereby eliminating other possible candidates from the position, who breaks his contract without justifiable cause, either before beginning his service or during his period of service, except by mutual consent and agreement between the candidate and the hospital, may be barred from the examinations for certification at the discretion of the board.

11. It should be recalled by all concerned that credits for graduate training may be obtainable in certain instances for residency or assistantship service in hospitals not officially approved for residency training. Each such case must be individually considered, and credits will be largely dependent on the teaching qualifications of those in charge of the service, and the clinical facilities of the hospital in question.

PRECEPTORSHIP TRAINING

After July 1, 1955, the board will no longer accept training solely by preceptorship in fulfillment of educational requirements for admission to examination. To be eligible for preceptorship thereafter the candidate must have had a minimum of one year formal residency training in an institution approved by the board for residency training in obstetrics and/or gynecology.

After the above date, candidates who propose preceptorship training must notify the secretary of the board of such intent and request an application form. When this has been completed, signed by the preceptor and preceptee and returned to the secretary, it will be submitted (as has long been true of residency training programs) to the residency training committee of the board for their decision.

If the program is approved the preceptor must supervise closely the candidate's work and keep an informative record of the candidate's performance. The preceptor and the preceptee shall report in writing to the secretary of the board at the end of each six months of preceptorship, outlining the progress of the training program. This information will be placed in the candidate's application for admission to examination in order that it may be evaluated by the credentials committee.

As a general rule each year of preceptor training will receive a six months' credit toward the total of three years of training necessary for admission to examination. As is the case with candidates whose training has been entirely by formal residency, each application will be evaluated finally by the credentials committee.

An acceptable preceptor preferably shall be one certified by the American Board of Obstetrics and Gynecology and must

V 1
195

have been certified for a minimum of five years. Fellowship in the American College of Surgeons or long experience and established reputation as an obstetrician-gynecologist without either of the above qualifications may qualify the preceptor.

Preceptor and preceptee must work in a hospital approved by the Joint Commission on Accreditation of Hospitals.

The post-training practice requirements cannot be carried on concurrently with preceptorship training.

CERTIFICATION

Each certificate granted or issued does not of itself confer or purport to confer upon any person any degree or legal qualifications, privileges, or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician who is not certified by this board. The chief aim of the board is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily appear before the board for such recognition and certification according to its regulations and requirements.

The board does not subscribe to any hospital rule that certification is to be required for medical appointments especially in ranks lower than chief or senior staff of hospitals, or associate professor in schools of medicine, for the obvious reason that such appointments constitute desirable specialist training.

Even though certification or its full equivalent may be considered a desirable requisite to appointment in key positions, as on the senior or chief staff, particularly of hospitals expecting to conduct approved services for training of residents, it was never intended by this board that certification should be required by any hospital as a prerequisite to appointment, especially in such lesser positions.

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Address all communications to the American Board of Ophthalmology, Cape Cottage, Maine.

NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer on any person any degree or legal qualifications, privileges, or license to practice ophthalmology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to elevate the standards of qualification for specialists in ophthalmology and to certify as specialists doctors of medicine who appear before the board for such recognition and certification, according to its requirements and regulations.

REQUIREMENTS

All candidates must comply with current board regulations regardless of time of filing application. The board, acting as a committee, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final. Many candidates write the secretary outlining their training and asking for an estimate of their status and the further training required. The board's requirements are published to provide this information, and any candidate should be able to estimate his eligibility after studying these requirements. Individual officers or members of the board cannot and will not make such estimates. They will be made only by the committee on requirements, upon submission of the application for examination and the payment of the registration fee which must accompany it. Personal interviews with officers and members of the board should not be requested at any time.

PREREQUISITES

1. High ethical and professional standing.

2. Full citizenship in the country where the candidate practices. (Limited to countries of North and South America, their possessions and territories, and the Philippine Republic.)

3. A degree from a medical school of high standing, satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. An applicant whose training has been received outside of the United States and Canada must present credentials satisfactory to the board and is required to have the certificate of the National Board of Medical Examiners if he has been in practice less than 10 years.

4. Completion of an internship of not less than one year in a hospital approved by the same Council.

5. Completion, by the time of the written qualifying test, of not less than 36 months (a total of 60 months is required of candidates practicing both ophthalmology and otolaryngology) of combined study, training, and practice of ophthalmology in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships, and private practice.

6. Effective Jan. 1, 1957:

(*a*) Licensure in the state, province, or country where the candidate practices.

(*b*) Individuals who have completed three years of formal ophthalmological training (residency and basic science courses) will be eligible to apply for the written qualifying test after completion of one year of practice or one year of institutional work. All other individuals (with less formal training) will be eligible to apply for the written test after 60 months in ophthalmology or 72 months of combined ophthalmology and otolaryngology. A basic course is recognized as equivalent in time to residency training.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application forms must be filled out completely and accurately. Letters of endorsement, together with any other required credentials, must be sent to the secretary's office before the deadline date.

2. Fee of $100 remitted with application.

3. A list of papers or books published.

4. Written qualifying test.

5. Practical examination.

6. Special review of ophthalmic surgery.

7. Membership in the American Medical Association or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association.

FEES

For written test and original examination, $100 (as mentioned above).

Repeating written qualifying test, $65.

Repeating practical examination, $65.

Single conditions, written or practical, $25.

Two or more conditions, $35.

Written qualifying test must be taken within three years of date of application. Thereafter new application and fee are required.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

SPECIAL TRAINING

This shall include:

1. Graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly: anatomy, histology, embryology, optics, physiological optics, visual physiology and psychology, pathology, bacteriology, pharmacology, disorders of ocular motility and binocular vision, perimetry, and in the skillful adjustment and use of instruments such as the ophthalmoscope, retinoscope, slit lamp, and microscope. Mere factual knowledge is not sufficient; the candidate must have had training in the application of these subjects and in their use in clinical ophthalmology, especially in refraction.

2. Active clinical experience in approved hospitals, clinics, dispensaries, and private practice. Library and laboratory facilities should be utilized for intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the board.

These requirements may be met in various ways:

BASIC STUDIES

Anatomy and histology of the normal eye
Embryology and developmental abnormalities
Biochemistry
Pathology
Microbiology and immunology
Optics and physiological optics
Ocular physiology
Medical ophthalmology
Pharmacology
Neuro-ophthalmology
Principles of ophthalmic surgery

These may be covered by:

A. *Graduate Study.*—By a curricular course in the basic sciences related to ophthalmology in an approved graduate medical school.

B. *Postgraduate Study.*—By courses in individual basic sciences related to ophthalmology as given at various approved institutions. The Home Study Course of the American Academy of Ophthalmology and Otolaryngology is recommended.

C. *Residency.*—By advanced study of these subjects during a residency and by correlation of the principles involved with clinical problems.

D. *Research, Fundamental and Clinical.*—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic sciences into direct relation with the concrete clinical problem.

CLINICAL EXPERIENCE

A. By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the entire field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff, and the method of presentation as well as the subject matter, is critically considered.

B. By residencies in hospitals in which regular instruction by lectures and quizzes and seminars is not available. The syllabus issued by the board will guide the resident in his selection of topics to be studied.

C. By fellowships in ophthalmology.

D. By preceptorship with a well-trained and critical ophthalmologist.

E. After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part-time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F. Research under competent critical and sympathetic supervision will give firsthand insight into (1) the methods whereby old knowledge was and new knowledge is acquired and (2) the pitfalls that accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate basic facts in the intelligent critical way which is expected of the specialist in practice.

G. The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

MILITARY SERVICE

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

WRITTEN QUALIFYING TEST

Before being accepted for examination, candidates are given a written test to ascertain their qualifications. The questions may cover any part of ophthalmology and are especially devoted to the basic studies as listed above. The written test will be given in several principal cities at the same time. Choice of cities is determined largely by the geographical distribution of candidates. Candidates found acceptable will be notified to appear for a subsequent practical and clinical examination in ophthalmology.

EXAMINATIONS

Examinations usually are held annually at or near the time and place of the meeting of the American Medical Association; also at other times and places at the discretion of the board, depending on the number of applications from any region.

The board reserves the right to limit the number of candidates to be admitted to any scheduled practical examination.

Candidates must be examined in all subjects listed in the sections titled Basic Studies and Practical and Clinical Examination.

PRACTICAL AND CLINICAL EXAMINATION

The subjects of the practical examination are as follows: (1) External Diseases, (2) Ophthalmoscopy, (3) Histopathology, (4) Refraction, (5) Motility, (6) Ophthalmic Surgery, and (7) Perimetry.

1. *External Diseases of the Eye and Adnexa.*—Various methods of examination, diagnoses, and treatment.

2. *Ophthalmoscopy.*—Patients will be examined by the candidate and the findings described or drawn. A candidate is required to bring his own ophthalmoscope.

3. *Pathology.*—The candidate will demonstrate familiarity with general clinical pathology as well as the etiology, pathology, and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize normal and pathological histology of the eye.

4. *Refraction.*—A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5. *Motility.*—The candidate will demonstrate on patients his familiarity with routine methods of examination and diagnosis.

6. *Ophthalmic Surgery.*—Examination of surgical patients and discussion on principles of ophthalmic surgery.

7. *Perimetry.*—The candidate will be given an opportunity to examine patients by use of the arc perimeter, the tangent screen, and the stereocampimeter. He may also be required to interpret charted fields.

SPECIAL REVIEW OF SURGICAL CASES

The board now requires of all candidates a list of ophthalmic operations performed within two years prior to examination. This list is to be presented with application.

The operations should be listed in groups of each type of surgery. The numbers of operations in each group must be totaled and the total number of all operations shown. This list must contain the following data:

1. Date.

2. Condition or conditions for which operation was performed. Complications during hospitalization.

3. Name and character of operation.

V 1
195

4. Identification by hospital or clinic number, or the name of a consultant or conferee, who was present at the time of operation.

Circumstances that prevent any candidate from fulfilling this requirement should be fully explained, with detailed statement of candidate's surgical experience.

CERTIFICATION

The decision of the board is final as to the candidate's passing, failure, or partial failure. The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examinations.

Certified ophthalmologists should refer to themselves as diplomates of the American Board of Ophthalmology. (There are only 12 members of the board and these are elected from the 3 component societies.)

REEXAMINATION

Candidates may be reexamined as often as they desire on satisfactory evidence of adequate additional preparation and payment of reexamination fee. When a candidate is conditioned in one or more subjects the committee on examinations shall decide on the merits of the case and the length of time that must elapse before reexamination in these subjects. A minimum of two years additional preparation is required of candidates who fail in all subjects. The board may, at its discretion, deny the candidate the privilege of reexamination.

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GENERAL ELIGIBILITY REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. Graduation with a degree of doctor of medicine from a medical school of the United States or Canada, recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school on the approved list of the afore-mentioned Council.

3. Completion of an internship of not less than one year in a hospital approved at that time by the Council on Medical Education and Hospitals of the American Medical Association or, if trained in foreign countries, in institutions considered satisfactory by the American Board of Orthopaedic Surgery.

4. Completion of one year of resident training in general surgery in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or substitute training in general surgery considered satisfactory by the American Board of Orthopaedic Surgery. The minimum of one year of training in general surgery is in addition to the minimum of one year of internship. This requirement may be fulfilled by substituting a second year of internship, by time spent in research, by time spent on a service in which there is an overlap of interest with orthopedic surgery, by a fourth year of approved orthopedic resident training, or by surgical work in private or military life.

5. Completion of formal requirements for part 1 or part 2 examinations. These formal requirements can be satisfied only by training in one or two categories: (*a*) resident orthopedic training and (*b*) preceptorship training.

Applicants may not be admitted to examinations, or be certified, on the basis of extensive specialized practice and/or teaching appointments and/or many short unapproved courses.

6. Restriction of practice to orthopedic surgery.

REQUIREMENTS FOR PART 1 EXAMINATIONS

1. Completion of and compliance with afore-mentioned general eligibility requirements.

2. Citizenship in the United States or Canada, or possession of citizenship papers showing intent to become a full citizen.

3. Following completion of a year of internship, satisfactory completion of a minimum of one year of general surgical training, or its substitute, plus (*a*) two years of approved training in orthopedic surgery under a program of resident training, or (*b*) completion of a minimum of five years of orthopedic training under a preceptorship program.

4. Evidence of competence in training.

5. Approval for examination by the committee on eligibility of The American Board of Orthopaedic Surgery.

REQUIREMENTS FOR PART 2 EXAMINATIONS

1. Successful completion of part 1 examinations.

2. Full citizenship in the United States or Canada.

3. License to practice in the United States or Canada.

4. Satisfactory completion of a minimum of three years of approved resident training in orthopedic surgery, plus a minimum of two subsequent years of practice period for applicants trained under resident orthopedic training programs.

5. Satisfactory completion of a minimum of five years of practice period for applicants trained under preceptorship programs.

6. Evidence of competence in practice.

7. Approval for examination by the committee on eligibility of the American Board of Orthopaedic Surgery.

APPLICATION AND EXAMINATION FEE SCHEDULE

1. Application for part 1, fee $15, not returnable.

2. Examination, part 1, fee $35, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

3. Application for part 2, fee $15, not returnable.

4. Examination, part 2, fee $50, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

5. Reexamination, part 1, fee $35; for part 2, fee $50. No application fee is required for reexamination.

APPLICATIONS

1. Applications for part 1 examinations must be received in the office of the secretary of the board before Nov. 30 of the year preceding the examinations.

2. Applications for part 2 examinations must be received in the office of the secretary of the board before Aug. 15 of the year preceding the examinations.

3. Notices of acceptance for admission to the part 1 examinations are mailed to eligible candidates during the month of February in the year of the examinations.

4. Notices of acceptance for admission to part 2 examinations are mailed to eligible candidates during the month of November in the year preceding the examinations.

5. Questions of eligibility for examinations are decided by the committee on eligibility of the board. This committee meets twice yearly. The secretary is not empowered to rule on questions of eligibility.

6. The life of an application is three years. After this time a new application and application fee must be submitted.

EXAMINATIONS

1. Part 1 examinations are held once yearly, usually in April or May, in various centers in the United States.

2. Part 2 examinations are held once yearly, usually in one center, immediately preceding the meeting of the American Academy of Orthopaedic Surgeons.

3. The locations and dates of coming examinations are announced in THE JOURNAL of the American Medical Association and the *Journal of Bone and Joint Surgery*.

CERTIFICATION

1. Applicants who successfully pass part 1 examinations will receive no certificate but will be notified by letter by the secretary.

2. Applicants who successfully pass part 2 examinations receive a certificate of the board, which states that they have been found qualified to practice the specialty of orthopedic surgery in those fields in which they have been trained and examined.

3. Candidates obtaining certification without training and examination in children's orthopedic surgery may subsequently add certification in children's orthopedic surgery by completing a minimum of one year of approved resident orthopedic training in children's orthopedic surgery and successfully passing examination in that field. A practice period of one year is required following completion of resident training, prior to examination for additional certification.

APPROVED RESIDENCIES

1. In the United States, resident training must be taken in institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association. All approved institutions are listed yearly in the Internship and Residency Number of THE JOURNAL. Lists may be obtained from the American Medical Association and are not obtainable from the board.

2. The integral parts of approved residencies are designated in lists by the following symbols: A—adult orthopedic surgery; C—children's orthopedic surgery; F—fracture surgery; and S—basic science training. Approved lengths of training in institutions is also designated.

3. Candidates electing an additional year of training in adult orthopedic surgery and fracture surgery in lieu of a year in children's orthopedic surgery may satisfy requirements by continuing their training beyond the designated approved length of time in institutions approved for adult orthopedic surgery or adult orthopedic surgery and fractures.

4. Credit for resident training is not retroactive. Candidates must receive resident training in institutions during periods that such institutions are on the approved list. If candidates are in training at institutions at the time that such institutions become approved, resident training credit may be granted from the start of the training period provided that the program is judged to have been satisfactory.

5. Candidates in resident training, or possessing signed contracts for future resident training in institutions which become disapproved, either in whole or part, receive resident training credit for the entire period during which their contracts are in force.

6. The term "fellow" is considered synonymous with "resident" when the position occupied and the work performed is equal in all functions. Fellowships in institutions having residents, in which training and responsibilities are not equal, are not credited as resident training.

7. Institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association may, with prior acceptance by the American Board of Orthopaedic Surgery and notification to the Council, utilize the training facilities of institutions not individually approved for resident training by the aforementioned Council, provided that: (*a*) the training supplements services in the same categories in which the institution responsible for training is approved by the Council, (*b*) the resident spends at least half of the minimum required time in each category of training in institutions approved by the Council.

8. Foreign residencies must satisfy the American Board of Orthopaedic Surgery.

9. Application for approval of the training facilities of any institution must be made to the Council on Medical Education and Hospitals of the American Medical Association, and inspection of such facilities is made by representatives of the Council. Final approval is a joint function of the Council and the American Board of Orthopaedic Surgery.

REQUIREMENTS OF RESIDENT ORTHOPEDIC TRAINING

1. Institutions approved for full three year programs including all parts of the training requirements may integrate all parts so that they are given concurrently.

2. Institutions now approved for less than three years of orthopedic resident training should arrange with other approved institutions to provide complete three year programs for all residents.

3. The minimum requirements of resident orthopedic training are as follows: (*a*) one year of training in adult orthopedic surgery, (*b*) six months of training in the basic sciences, (*c*) six months of training in fracture surgery, and (*d*) one year of training in children's orthopedic surgery or, if elected, an additional year of training in adult orthopedic surgery and fracture training in place of training in children's orthopedic surgery.

4. Candidates who elect an additional year of training in adult orthopedic and fracture surgery instead of a year in children's orthopedic surgery may satisfy the requirements by taking the additional year of training in adult orthopedic surgery or six months of adult orthopedic surgery and six months of fracture surgery, but may not take the entire year of training in fracture surgery.

5. Training in adult and children's orthopedic surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of orthopedic problems.

6. Training in fracture surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of recent and old fractures.

7. Training in the basic sciences must instill a sound knowledge of anatomy, pathology, physiology, bacteriology, and biochemistry as these basic sciences apply to orthopedic surgery.

8. Candidates may complete the training requirements by training in several approved institutions provided that all the aforementioned minimum requirements are satisfied on approved services.

9. No training period of less than six consecutive months in one institution may be credited toward resident training requirements, except a few short courses on the board's approved list and recognized supplementary services of approved institutions.

10. Candidates in resident training may not engage in private practice.

11. Candidates in resident orthopedic training must receive their training in institutions and may not receive credit for time spent assisting in private office practice, which is considered as preceptorship training.

REQUIREMENTS OF PRECEPTORSHIP TRAINING

1. The preceptor must possess certification by the American Board of Orthopaedic Surgery.

2. The practice of the preceptor must be extensive enough to give the candidate experience in all phases of orthopedic practice.

3. The preceptor must devote special periods of time each week, outside of the routine hours employed in hospitals and office practice, to assist the candidate with organized courses of study similar to those received during resident training.

4. If facilities and instruction in the related basic sciences are not available, the candidate must spend a minimum of six months as a student in an institution approved for basic science training in orthopedic surgery.

V 1
195

5. The candidate in preceptorship training must spend six months in an institution approved for basic science training in orthopedic surgery. No credit for children's training will be allowed unless the preceptor is on the active staff of an institution approved by the Council for resident training in children's orthopedic surgery. The candidate must train as a full-time assistant to the preceptor and may not maintain a separate office or engage in individual practice.

6. The minimum training period in orthopedic surgery under the preceptorship program is five years in addition to the one year of resident training in general surgery or its substitute, after which time the candidate may file application for part 1 examinations.

7. The minimum practice period required for candidates trained under the preceptorship program is five years, after which time the candidate may file application for part 2 examinations. This makes a minimum total of 10 years from the start of orthopedic training to eligibility for part 2 examinations.

8. The practice period may be satisfied in individual private practice or in assistantship or partnership.

9. Candidates who combine preceptorship training with approved resident training receive credit for the preceptorship portion of their training only if it totals a minimum of two years. Two years of preceptorship training are credited as the equivalent of one year of resident training. The practice period requirement is likewise evaluated so that three years of practice are required if the candidate submits two years of preceptorship and two years of resident training, and four years of practice are required if four years of preceptorship and one year of resident training are submitted.

159
55

SEQUENCE OF EXAMINATIONS AND PRACTICE REQUIREMENTS

1. No person may take part 2 examinations until after successful completion of part 1 examinations.

2. Successful completion of part 1 examinations in no way obligates the board to declare a candidate eligible for part 2 examinations.

3. Regardless of how extensive or prolonged a practice a candidate may have had prior to completing the training requirements, such time may not be credited toward practice requirements. All practice requirements must be satisfied subsequent to completion of training requirements.

4. Candidates may not be admitted to examinations on the basis of prolonged practice but must qualify on the basis of formal training in one of the categories previously detailed.

PRACTICE REQUIREMENTS

1. Candidates must maintain high ethical and professional standards.

2. Candidates must strive to increase their scientific knowledge.

3. Candidates must limit their practice to orthopedic surgery.

4. Candidates who have had no approved training in children's orthopedic surgery must confine their practice to fracture and adult orthopedic surgery.

5. Candidates trained in resident orthopedic training are required to complete a minimum of two years of orthopedic practice subsequent to the completion of their formal training before becoming eligible for part 2 examinations.

6. Candidates in private or institutional practice must spend a minimum of 14 months in one locality immediately prior to application in order that practice may be properly evaluated.

7. Candidates employed full time in institutions may satisfy practice requirements by serving a minimum of two years, but minimum requirements may not be satisfied by mixing full-time institutional work with preceding or subsequent time in private practice.

8. Candidates trained by preceptorship are required to complete a minimum of five years of orthopedic practice before becoming eligible for part 2 examinations. The practice period may be independent of the preceptor.

METHOD OF EXAMINATION

1. Part 1 examinations consist of a written examination and oral examinations. Material covered includes fundamental surgical principles, elementary fracture and orthopedic procedures, history-taking, and physical examinations as well as those parts of anatomy, pathology, physiology, and biochemistry related to orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) physiology and biochemistry, (*d*) surgery, and (*e*) fractures and orthopedic surgery.

2. Part 2 examinations consist of a written examination and oral examinations. Material covered includes advanced work in all phases of orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) children's orthopedic surgery, (*d*) fractures, and (*e*) adult orthopedic surgery.

3. Candidates who have not had approved training in children's orthopedic surgery will not be examined in that branch of orthopedic surgery.

4. Candidates are notified by letter as to whether they passed or failed in the examinations. No information regarding results is available until such letters are mailed.

5. Results of integral parts of examinations are not available to either candidates or diplomates of the board.

6. Candidates who have passed part 1 examinations are required to take part 2 examinations within a 10 year subsequent period. If there is a lapse of more than 10 years, candidates must repeat part 1 examinations and must then become eligible by the requirements then in force.

REEXAMINATIONS

1. Applicants who fail to pass part 1 or part 2 examinations may be reexamined a second or third time in each part, but must pay the prescribed examination fee each time of reexamination.

2. Applicants who fail to appear for second and, if necessary, third reexaminations within three years after first failure must submit new applications with the appropriate fees.

3. After three successive failures in part 1 or part 2 examinations, applicants must present evidence of additional orthopedic training satisfactory to the board before submitting new applications.

MILITARY SERVICE

1. Medical officers who have elected service in the military forces as their life careers compete for certification on the same basis as do physicians in civilian practice.

2. Physicians who served for a minimum of one year in the military forces during the war years, between Jan. 1, 1941, and July 1, 1946, are granted a bonus of one year of practice credit, provided that the same time is not used for resident training credit.

3. Applicants who served in military hospitals whose service is judged by the board to have been equal to that of approved resident orthopedic training may be granted a maximum credit of one year of resident orthopedic training. Applicants requesting such credit must submit completed "Professional Training Records."

4. No applicant may be granted more than one year of resident training credit and one year of practice credit for military service during the war years.

5. Medical officers assigned to civilian institutions on the approved list for resident orthopedic training receive the same credit as do civilian candidates.

6. Medical officers who have elected service in the military forces as their life careers must satisfy the practice requirements by military assignments in which their duties are limited to the practice of orthopedic surgery.

RECORDS OF SURGICAL CASES AND INSPECTIONS

1. Records of a specified number of consecutive surgical cases may be requested by the board in order to evaluate properly the work of an applicant.

2. A representative of the board may visit a community in order to evaluate properly the work of an applicant.

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GENERAL REQUIREMENTS

The following general qualifications of candidates for examination are required by the board:

1. A candidate must be a citizen of the United States or the Dominion of Canada.

(*a*) A candidate must have been a graduate for five years or more of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A candidate must be of known good moral character and be ethical in his professional relationships.

(*c*) A candidate trained in a foreign country must be able to give proof of medical and graduate training comparable to the requirements of the board.

(*d*) A candidate from the United States or the Dominion of Canada must be a member of the American Medical Association or of the Canadian Medical Association respectively or other such medical societies of equal standing as are recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Candidates from foreign countries who have received their training in otolaryngology in the United States are eligible for examination at the discretion of the board, providing they show proof that they are permanent residents and citizens of their respective foreign countries and provided they meet the general academic requirements of the board.

SPECIAL REQUIREMENTS

1. A candidate must have had a general internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. A candidate must be proficient in the applied basic sciences, fundamental to the intelligent practice of otolaryngology. These include anatomy of the ear, nose, and throat, neck chest, esophagus and nervous system, gross pathology and histopathology, bacteriology, physiology, didactic otolaryngology and the general fundamentals of surgery. (This requirement may be fulfilled in a residency or fellowship service or in an approved organized postgraduate course.)

3. In addition to the general internship, the required clinical training in otolaryngology may have been acquired in any of the following ways:

(*a*) A three years' approved residency or fellowship in otolaryngology approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A four years' approved residency or fellowship in otolaryngology and ophthalmology approved by the Council on Medical Education and Hospitals of the American Medical Association, provided one half of the training has been in otolaryngology.

(*c*) A two years' approved residency or fellowship in otolaryngology or a three years' approved combined residency or fellowship in otolaryngology and ophthalmology, provided two years have been in otolaryngology and have been preceded by at least one year's approved residency training in surgery or medicine, or by an additional year in an approved internship.*

4. In exceptional circumstances certain candidates who cannot meet all of the above requirements may be accepted for examination on recommendation of the credentials committee, substantiated by action of the board.

5. At least one year must be spent in private, group, or institutional practice of otolaryngology after the period of special training. This requirement may be waived in cases of candidates of foreign countries who are permanent residents and citizens of their respective countries and who are returning there for the practice of otolaryngology. Should such a candidate pass the examination the certificate of the board will be withheld until the board has been furnished evidence that the candidate has spent one year in the practice of otolaryngology.

6. A candidate may be qualified for examination, at the discretion of the American Board of Otolaryngology, if in addition to the General Requirements and Special Requirements, no. 1 and 2, he has limited his practice to otolaryngology for seven years in association with a hospital staff approved by the Council on Medical Education and Hospitals of the American Medical Association.

7. A physician who limits himself exclusively to the practice of peroral endoscopy may be granted limited certification in this field by the American Board of Otolaryngology irrespective of certification in any other specialty. Limited certification will be granted provided the candidate has spent not less than one year of training in a hospital approved for endoscopic teaching and has passed successfully examinations in the basic sciences as they pertain to this field, and didactic and clinical examinations covering diseases of the larynx, pharynx, neck, esophagus, stomach, tracheobronchial tree, lungs and mediastinum and certain aspects of cardiovascular disease as they pertain to peroral endoscopy. A limited certificate by the American Board of Otolaryngology will not be issued to physicians who have been certified in a specialty that employs peroral endoscopy in diagnosis and/or

* See Standards for Residencies in Otolaryngology published by the American Medical Association.

V 1
195

treatment because his major interest is in that specialty, not in endoscopy.

All candidates must comply with current board regulations, regardless of the time of filing application.

APPLICATION AND FEES

1. Application must be made in duplicate on special blanks procured from the secretary. The completed application blanks must be returned to the secretary, together with the other required credentials, at least 120 days in advance of the examination at which the candidate desires to appear.

2. The applications must be accompanied by two small photographs of the candidate, together with verification of the period of enrollment from the institutions where training in otolaryngology was obtained, and the names of two or more otolaryngologists, preferably diplomates of the board, from the vicinity of the candidate's place of residency, to be used as references.

3. The fee for the examination is $150. Of this sum $75 must accompany the application, of which $50 shall be returned if candidate is not accepted for examination. No application will be acted on until the $75 application fee is received. The remaining $75 of the total examination fee of $150 must be paid to the secretary on notification that the candidate has been accepted. A reexamination fee of $75 is required of candidates conditioned in one or more subjects.

4. The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expense.

5. The application remains valid for three years. An applicant must appear for examination within this time or forfeit the fee.

6. Candidates whose credentials have been found satisfactory and who meet the requirements of the board will be notified 90 days prior to the date of examination. The number of candidates who can be admitted to any one examination is limited. Due to a large number of applications on file, delay in assignment for examination may be inevitable. Appointments will be given in the order applications are accepted and on payment of the balance of the examination fee.

7. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

EXAMINATION

Examinations will be held at such time and place as the judgment of the board may dictate. Advance notice of examinations will be given in THE JOURNAL of the American Medical Association and the several special journals devoted to otolaryngology. Insofar as is possible these will be held biannually at, or near, the time and place of meeting of the American Medical Association, or special societies, and of the American Academy of Ophthalmology and Otolaryngology. The examinations cover from two to four days.

Scope.—This examination encompasses all phases of otolaryngology and peroral endoscopy, including maxillofacial surgery, and surgery of the neck, excluding the thyroid.

The type of examination is as follows:

1. Clinical, covering the actual handling of patients, including history-taking, physical and functional examinations, the use of laboratory and x-ray findings, and a discussion of differential diagnosis.

2. Didactic, oral examinations covering all phases of otolaryngology.

3. Gross and microscopic pathology.

4. A written examination may be included when the board deems this advisable.

REEXAMINATION

A candidate who is conditioned in examination may be admitted to a subsequent examination after one year and within the three year period dating from his application on payment of an additional fee of $75, and 120 days' notice of intention to appear is required.

AMERICAN BOARD OF PATHOLOGY

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GENERAL REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. License to practice medicine or a certificate of the National Board of Medical Examiners.

3. The applicant must devote his time primarily and principally to the practice of pathology.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a medical school in other countries acceptable to the board.

SPECIAL TRAINING AND EXPERIENCE

1. The board admits candidates to examinations who are otherwise eligible and who have had either of two following types of training and experience.

(*a*) After five years, if four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board; or

(*b*) After 11 years if none of the training and experience has been in institutions so approved.

2. The specific requirements for those acceptable after five years are as follows:

(*a*) Pathological anatomy only.

(1) Four years of supervised study and training in an institution approved for residency training in pathological anatomy by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. In addition, time, not to exceed 12 months, spent in a department of pathology of an approved school of medicine after the completion of the second year of undergraduate study may be counted for full credit toward the four years.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of pathological anatomy in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*b*) Clinical pathology only.

(1) Four years of supervised study and training in an institution approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university, for one of the four years. Candidates holding also a master's or doctor's degree in a special field of clinical pathology (bacteriology, serology, chemistry, parasitology, or hematology) may obtain time credit for not more than 12 to 24 months toward the four years for this work,

regardless of whether it was taken before or after the medical degree. The evaluation of time credit will depend on how much of the broad field of clinical pathology was covered in the graduate work.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*c*) Pathological anatomy and clinical pathology.

(1) Four years of supervised study and training divided as follows: (*a*) two years of supervised study and training in pathological anatomy as outlined in the preceding paragraph 2-(*a*)-(1), (*b*) two years of supervised study and training in clinical pathology as outlined in the preceding paragraph 2-(*b*)-(1). Candidates declared eligible before July 1, 1953, may at their own election substitute one year (12 months) of a straight or rotating clinical internship for one year of this special training in clinical pathology. After July 1, 1953, all candidates applying for both pathological anatomy and clinical pathology will be required to have two years of supervised training in clinical pathology.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of both pathological anatomy and clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board. After July 1, 1953, candidates who elect to claim credit for one year for a clinical internship must take this fifth year as supervised study and training in clinical pathology in institutions approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates declared eligible after July 1, 1953, who do not take a clinical internship, may, after four years of training as outlined in 2-(1)-(*a*) and (*b*), spend the fifth year in independent practice in an institution or laboratory acceptable to the board.

NOTE: As outlined in the preceding paragraphs, the total time requirements of the board are unchanged after July 1, 1953, namely, five years of study or practice after graduation from medical school, with exceptions noted in sections 2-(*a*)-(1) and 2-(*b*)-(1).

3. The specific requirements for those acceptable after 11 years are as follows: (*a*) The practice of pathology under circumstances acceptable to the board for a period of not less than 11 years. At the election of the candidates, a period not to exceed one year of straight or rotating clinical internship may be substituted for one of the 11 years. For those candidates in this category who have had some special study and training in pathologic anatomy or clinical pathology acceptable under paragraphs 2-(*a*), (*b*), or (*c*), double time credit will be allowed. Thus, if a person has two years of acceptable supervised study and training, only seven years of practice are required.

SPECIAL QUALIFICATIONS

1. Prior to Dec. 31, 1947, the board at its discretion certified candidates without examination, if the following conditions were met as of July 1, 1939: (*a*) that the candidate has been for a period of five years of professorial rank in a department of pathology in an approved medical school; or (*b*) that the candidate had been practicing pathology for 10 years in a senior position in a hospital having an adequate department of pathology, approved by the Council on Medical Education and Hospitals of the American Medical Association or in an institution acceptable to the board.

CREDIT FOR MILITARY SERVICE

Credit may be allowed for training and experience in pathology in the federal services during the period July 1, 1940, to June 30, 1947. This credit for training or experience or both is given on an individual basis and will depend on the opportunity the applicant has had, as indicated by his or her medical service record in the specialty of pathology.

After July 1, 1947, credit for those military services will be given on the same basis as it is in civilian institutions, except that the rule in the preceding paragraph will not apply to reserve officers who continue on active duty or are called to active duty after that date.

SPECIAL FIELDS OF PATHOLOGY, CLINICAL CHEMISTRY, CLINICAL MICROBIOLOGY, HEMATOLOGY, AND NEUROPATHOLOGY (IN FORCE AFTER JULY 1, 1954)

The trustees of the American Board of Pathology have adopted the following requirements for certification in special fields of pathology, effective July 1, 1954.

Candidates who have met all general requirements and have had special training and experience that is acceptable to the board in a special field of pathological anatomy or clinical pathology may apply to the board for certification in that special field. The board, at its discretion, may approve this application, and after the candidate has successfully passed a prescribed examination or has fulfilled certain special qualifications (see below, section D), will issue a certificate designating the special field.

A. General Qualifications:

1. Satisfactory moral and ethical standing in the profession.
2. License to practice medicine or a certificate of the National Board of Medical Examiners.
3. The applicant must devote his time primarily and principally to the practice of pathology or the special field of pathology in which he is requesting certification.

B. Professional Education:

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association or graduation from a medical school in other countries acceptable to the board.

C. Special Training and Experience:

The board admits candidates to examination in special fields of pathology who are otherwise eligible and who have had either of the following types of training:

1. Applicants already holding a certificate of the board in clinical pathology or the combined certificate in pathological anatomy and clinical pathology (for qualification in clinical chemistry, clinical microbiology, and hematology), or in pathological anatomy (for qualification in neuropathology)—two additional years of supervised training in the special field of their choice in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board.
2. Applicants not holding a certificate in pathological anatomy or clinical pathology—five years of training in the special field of their choice, provided four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. The fifth year may be a continuation of supervised training or may be independent practice of the particular specialty in a hospital approved by the American Medical Association or in other institutions acceptable to the board.

D. Special Qualifications—Certification Without Examination:

Prior to Jan. 1, 1960, the board at its discretion may certify candidates without examination if the following conditions have been met as of Jan. 1, 1955:

1. That the candidate has been for a period of five years of professorial rank in the special field of his choice and in an approved medical school, or
2. That the candidate has been practicing his specialty for 10 years in a senior position in a hospital having an adequate department in the special field, approved by the Council on Medical Education and Hospitals of the American Medical Association, or in an institution acceptable to the board.

V 1
195

APPLICATION BLANK AND FEE

Application must be made on the special form that may be procured from the secretary and forwarded with other required credentials and the application fee. An application cannot be given consideration by the board unless it is accompanied by the application fee.

The application or examination fee for candidates is $60. If the candidate fails in his examination he will be admitted to a second examination after one year. The applicant must pay an additional fee of $40 before a second examination will be given.

The application fee of $60 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the board members receive any compensation for their services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the board, his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the examination.

EXAMINATIONS

Written and oral examinations will be held at the discretion of the board at or near the time and place of national medical meetings. If a number of applications from any region of the country are received, an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis, interpretation and technique. The applicant may apply for certification in either pathological anatomy or clinical pathology or both.

The examinations in pathological anatomy consist of a written test, an oral examination on gross pathology, and a practical examination in microscopic pathology. The examination in clinical pathology consists of a written test and an oral and practical examination in the six phases of clinical pathology: bacteriology, hematology, clinical chemistry, parasitology, serology, and clinical microscopy.

DEFINITIONS

1. Pathological anatomy is that branch of pathology that deals with the morphological aspects of disease, recognition being given that that definition covers two phases of pathology: (*a*) the applied phase with special attention to the description and diagnosis of gross and microscopic specimens, (*b*) the academic phases of teaching and general morphological diagnosis.

2. Clinical pathology is that branch of pathology that deals with bacteriology, immunology, clinical chemistry, parasitology, hematology, endocrinology, clinical microscopy, and the application of the physical and biological sciences to the diagnosis, prognosis, and treatment of disease.

BOARD NOT AN EDUCATIONAL INSTITUTION

The board is in no sense an educational institution, and the certificates of the board are not to be considered degrees. Therefore, the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the board.

CRITERIA FOR APPROVAL OF INSTITUTIONS FOR TRAINING IN PATHOLOGY

In Sections C-2-a, C-2-b, and C-2-c of the General Requirements, it is stated that candidates must have certain periods of supervised study and training. The American Board of Pathology, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, certifies hospitals in the United States as satisfactory for this supervised study and training. Lists of these hospitals are published in the Internship and Residency Number of THE JOURNAL of the American Medical Association each year. In addition, the American Board of Pathology recognizes certain hospitals outside the United States and certain laboratories not connected with hospitals in the United States. Inquiries concerning these should be directed to the secretary of the board.

The general criteria for approval of hospitals and laboratories are both qualitative and quantitative. On the score of quality, consideration is given to the qualifications of the director of laboratories and in the associates and assistants, the supervision of work of the person in training, the excellence of the educational program, and the exactness and completeness of the laboratory work performed. On the score of quantity, consideration is given to the volume and distribution of laboratory work, both in absolute numbers and in relation to the size of the hospital, to the diversity and completeness of tests performed, to the size and equipment of the laboratory, and to the number of professional and nonprofessional personnel in relation to the volume of work.

In general, the qualitative standards will determine whether or not a hospital or laboratory is approved, and the quantitative standards will determine whether the approval is for one, two, three, or four years of credit toward the requirements of the board.

In evaluation of applications the board takes into consideration the following criteria:

1. Director of laboratories or pathologist:
   (*a*) It is required that the responsible head of the laboratory hold the certificate of the American Board of Pathology in the subject for which the hospital is approved, or be eligible for certification, and that he or she spend full time in the hospital. Full time is not interpreted in terms of hours, but rather that the director have no obligation outside the one approved hospital except in a university department of pathology in which he and the residents have an opportunity to participate in the educational program;
   (*b*) In special instances, the equivalent of full time by two or more qualified persons will be accepted and one person need not spend the entire working day in the laboratory;
   (*c*) In special instances, two or more hospitals will be approved as a unit with a single full-time director of laboratories if it is apparent that a satisfactory training program can be conducted;
   (*d*) In hospitals with over 350 beds, it is expected that the professional staff, in addition to the pathologist, will include one or more persons with special training and qualifications in the subspecialties of clinical pathology.
2. Technicians:
   There are no absolute criteria, but it is expected that the number of technicians will be proportional to the volume of laboratory work and that, insofar as possible, the technicians will hold the certificate of the Registry of Medical Technologists of the American Society of Clinical Pathologists.
3. Floor space of laboratory:
   In general, it is believed that the size of the laboratory should be related to the size of the hospital and the volume of laboratory work. A minimal ratio is 4 sq. ft. of space in the laboratory, including morgue and autopsy room, for each bed in the hospital.
4. Equipment for the laboratory:
   The variety and completeness of laboratory tests performed depends on the size of the hospital. In all hospitals there should be facilities for the more common tests in clinical pathology, for study of surgical specimens, and for performance of autopsies. In larger hospitals, the variety of tests performed should be larger, and in hospitals with over 500 beds all recognized laboratory procedures should be available for study and treatment of the patients.

5. Autopsy percentage:

   No institution with a percentage of less than 15 will be approved, and those institutions with percentages between 15 and 40 will be given special scrutiny.

6. Examination of surgical specimens:

   All surgical specimens should be sent to the laboratory for gross examination, and microscopic examinations should be made unless there are general or special reasons not to do so.

7. Indices:

   There should be indices according to the names of the patients and the diagnoses of all surgical and autopsy material. Indices of clinical pathology are left to the discretion of the hospital.

8. Museum:

   There should be available fixed anatomic and pathological specimens for study by the staff in proportion to the size of the hospital. Property filed and indexed color photographs may in part be substituted for museum specimens.

9. Library:

   A reasonably complete library of modern books and recent unbound and bound journals should be available to the hospital, and the more commonly used books and journals should be on hand in the laboratory.

10. Education program:

    The work of the person in training should be supervised. Conferences, seminars, journal clubs, and demonstrations should be conducted as frequently as the volume of material and the size of the staff justifies. A clinicopathological conference must be held at least every two weeks.

11. Volume of laboratory work:

    (*a*) As indicated in the following categories, no hospitals with less than 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology annually will be approved (Category D), except as outlined in the following paragraphs. It is the belief of the board that less material than this is inadequate for the training of a pathologist.

    (*b*) In the field of clinical pathology, there should be a reasonable diversification of tests, and in each category there should be sufficient absolute volume to provide training and experience. There are no absolute criteria, but special scrutiny will be given to a hospital in which there is not a reasonable diversification and variety.

    (*c*) In the field of pathological anatomy, a deficiency in either autopsies or surgical specimens may be made up by an excess of the other, if the deficiency does not exceed 20% of the minimum required in the ratio of one autopsy to 75 surgical specimens. Thus in a hospital approved for one year in pathological anatomy and clinical pathology, the minimums are 75 autopsies and 1,000 surgical specimens. If a hospital has 2,500 surgical specimens, it is acceptable if there are only 60 autopsies.

If a hospital has met these minimal qualitative and quantitative standards, it will then, on the basis of the following quantitative standards, be approved for one, two, three, or four years of training in pathological anatomy, or clinical pathology, or both, or some special field as shown for the number of residents indicated.

CATEGORY A. In both pathological anatomy and clinical pathology for four years (as required of all candidates seeking certification in both fields who are examined after July 1, 1952).

Minimum: 150 autopsies, 1,750 surgical specimens, and 65,000 tests in clinical pathology for four residents. Additional resident for each 50 autopsies or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY B. In both pathological anatomy and clinical pathology for three years. This meets all requirements of the board for supervised training until July 1, 1952. Candidates examined after that date who seek certification in both subjects must take an additional year of supervised training in clinical pathology or pathological anatomy in another hospital that is approved for the deficiency of training required.

Minimum: 125 autopsies, 1,500 surgical specimens, and 50,000 tests in clinical pathology for three residents. Additional resident for each 50 autopsies, 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY C. In both pathological anatomy and clinical pathology for two years. Candidates taking two years in these institutions must have an additional year (two years after July 1, 1952) in an institution in category A, B, or D.

Minimum: 100 autopsies, 1,250 surgical specimens, and 40,000 tests in clinical pathology for two residents. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY D. In both pathological anatomy and clinical pathology for one year. Candidates taking training in these institutions must have an additional two years (three years after July 1, 1952) in institutions that are approved for the deficiency of training required.

Minimum: 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology for one resident. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY E. In pathological anatomy only, for three or more years. Candidates taking all training in these institutions will not be eligible for certification in clinical pathology unless an additional year (two years after July 1, 1952) is taken in clinical pathology in institutions that are approved for the deficiency of training required.

Minimum: 175 autopsies and 1,500 surgical specimens for three residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY F. In pathological anatomy only, for two years. Candidates taking training in these institutions will not be eligible for certification in clinical pathology unless they take one additional year full time in clinical pathology (two years after July 1, 1952) in institutions that are approved for the deficiency of training required, and will be eligible in pathological anatomy only if another year is taken in another institution that is approved for one or more years in pathological anatomy.

Minimum: 125 autopsies and 1,250 surgical specimens for two residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY G. In pathological anatomy only, for one year. Candidates training in these institutions will not be eligible in both pathological anatomy and clinical pathology unless they take an additional year in pathological anatomy and an additional year (two years after July 1, 1952) in institutions that are approved for these periods of training. Candidates seeking certification in pathological anatomy only must study an additional two years in institutions that are approved for that period of training.

Minimum: 75 autopsies and 1,000 surgical specimens for one resident. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY H. For postmortem part of pathological anatomy for two years. Credit is never allowed for more than two years. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional year in an institution in Category A, B, C, E, F, or G with assignment to surgical pathology principally. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one-half year assigned to surgical pathology principally, in an institution in Category A, B, C, or J.

Minimum: 125 autopsies for two residents. An additional resident for each 60 autopsies.

CATEGORY I. For postmortem part of pathological anatomy for one year. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional two years in an institution in Category A,

V 1
195

B, C, E, F, or G with general assignments. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one year to an institution in Category A, B, C, E, F, or G.

Minimum: 75 autopsies for one resident.

CATEGORY J. Surgical pathology part of pathological anatomy for one year. Credit is never allowed for more than one year and the director of the laboratory must hold the certificate of the American Board of Pathology in pathological anatomy or be eligible for certification. Candidates training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional two years in an institution in Category H or in an institution of Category A, B, or C with assignment to postmortem pathology only. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology full time, and an additional year to an institution in Category A, B, D, E, F, G, or H with assignment to postmortem pathology full time.

Minimum: 2,000 surgical specimens for one resident. An additional resident for each 1,000 surgical specimens.

CATEGORY K. Special pathology as part of pathological anatomy. Credit for not to exceed one-fourth the time credit (one year if seeking certification in pathological anatomy only, six months if seeking both pathological anatomy and clinical pathology) of candidates applying in pathological anatomy may be taken in special laboratories with limited activities such as neuropathology, orthopedic pathology, ophthalmic pathology, etc. The candidate who receives credit in this category may, on request, have the field of special pathology designated on the certificate of the board.

CATEGORY L. Clinical pathology for three or more years. Candidates taking three years of training in these institutions will not be eligible for pathological anatomy unless they take an additional two years in institutions approved for pathological anatomy.

Minimum: 100,000 tests in clinical pathology for three residents. Additional resident for each 50,000 tests.

CATEGORY M. Clinical pathology for two years. Candidates taking two years' training in these institutions must take the same additional training as in Category L to be eligible for pathological anatomy also. To be eligible for clinical pathology only, an additional year of clinical pathology must be taken in an approved institution.

Minimum: 75,000 tests in clinical pathology for two residents. An additional resident for each 50,000 tests.

CATEGORY N. Clinical pathology for one year. Candidates taking training in those institutions must take an additional two years in an institution in Category A, B, C, L, or M assigned to clinical pathology for eligibility in clinical pathology only. To be eligible in pathological anatomy and clinical pathology, an additional two years in approved institutions is required.

Minimum: 50,000 tests in clinical pathology for one resident.

CATEGORY O. Special clinical pathology as part of clinical pathology. Candidates applying for clinical pathology only may receive credit for not in excess of one-quarter of the training period (one year if seeking certification in clinical pathology only, six months if seeking both pathological anatomy and clinical pathology) for work in a special field of clinical pathology, such as bacteriology, serology, etc. Under these circumstances, on request, the special field will be designated on the certificate of the board.

CATEGORY P. Research: residence in certain institutions in which full time is devoted to research with a direct application to the practice of pathological anatomy or clinical pathology may be accepted for credit not to exceed one-third the time requirement (20 months if no clinical internship, 16 months if a clinical internship was taken). The board encourages research and believes that all candidates should carry on investigation during their training in all institutions. Therefore, this category is only for those wishing to do full-time research.

AMERICAN BOARD OF PEDIATRICS

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JOHN McK. MITCHELL, Executive Secretary, 6 Cushman Rd., Rosemont, Pa.

REQUIREMENTS FOR CERTIFICATION [1]

All candidates for examination for certification must meet the following requirements:

1. Graduation from an approved medical school.

2. Hold a license to practice in the United States prior to issuance of a certificate except in those situations in which a license to practice is not required.

3. One year of rotating, pediatric, or other internship in an approved hospital.

4. Two years of specialized residency-type training in an approved pediatric center.

At least one year of the two years of required residency training must be a full-time medical pediatric inpatient residency or internship in an approved institution. The second year of required residency training may be met in the ways listed below, although the board recommends that whenever possible candidates complete the two years as regular residents.

(*a*) It is the fundamental concept of the American Board of Pediatrics that a residency training program should provide for properly organized progressive responsibility for the care of sick children. The board believes further that this purpose can be accomplished only through continuity of clinical experience under the supervision of staff physicians who are themselves responsible for the care of children on the service. The substitution of a formal course in a graduate or postgraduate school which does not carry the essential ingredient of responsibility for patient care is, in the opinion of the board, inconsistent with this principle. Accordingly, the board in the future will accept such courses as part of an approved residency program in pediatrics only in exceptional cases authorized by the board in advance of the same. The above provision will be considered to become effective on and after July 1, 1956.

In "exceptional cases," there are a small number of applicants for whom graduate school courses may be substituted for equivalent periods of residency training with benefit. These include certain physicians whose basic training may for one reason or another have been deficient or may have been gained such a long time in advance of completion of specialty training that graduate school training would be very helpful. In such cases, by prior arrangement, credit may be allowed for the same to a maximum of nine months.

(*b*) A maximum of three months' credit each is allowed for full-time residency type training in allied pediatric subjects such as pediatric allergy, pediatric psychiatry, pediatric pathology, pediatric radiology, newborn service, etc.

(*c*) A maximum of six months' credit is allowed for residency training in an approved contagious disease hospital.

5. A subsequent term of two years of specialized study or practice or a combination of the two. Credit for one year toward this requirement is allowed for medical military service regardless of the assignment. Credit in excess of one year may be

* Deceased.

1. To avoid misunderstanding, the board urges any candidate whose training is not clearly covered in these regulations to communicate with the office of the executive secretary. Whenever possible, this should be done before entering upon the appointment in question.

granted if the medical officer is engaged in full-time pediatrics, or may be prorated if a considerable proportion of time is spent in pediatrics. It must be noted, however, that the maximum credit that any candidate may receive toward the practice requirement for work done prior to the completion of residency training is one year.

Attention is invited to the fact that the primary duty of the resident must be the care of patients under supervision, if full credit in satisfaction of the residency training requirement is expected. Research residencies which involve little or no clinical training are creditable for only three months. Research residencies which include significant clinical training may be prorated to a total of six months for a year of service. Teaching fellowships may not be offered in lieu of residency appointments.

Both research residencies and teaching fellowships are, of course, entirely acceptable in satisfaction of the practice or further study requirement. Portions of a research residency not applicable for residency training credit may be carried over for practice credit.

Preceptorships are not accepted for credit toward the residency requirement, but are accepted toward the practice requirement.

The board defines service in a pediatric center as full time devoted to rounded experience in an approved hospital which includes responsibility for care of patients on ward and outpatient services, experience with newborn, including prematures, and both therapeutic and preventive pediatrics. It is expected that the service will include adequate graduate training in the basic medical sciences, as well as in the clinical, laboratory, and public health aspects of the specialty.

GRADUATES OF MEDICAL SCHOOLS IN CANADA

Graduates of approved medical schools in Canada and those who have received their internship and residency training in pediatrics in hospitals approved by the Royal College of Physicians and Surgeons of Canada will be eligible for examination for certification under the same regulations as those trained in the United States.

GRADUATES OF FOREIGN MEDICAL SCHOOLS

Citizens of the United States.—Citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada will be processed for eligibility for examination for certification if they can meet all the following requirements:

1. They are graduates of a medical school recommended by the Council on Medical Education and Hospitals of the American Medical Association.
2. They hold a license to practice in the United States.
3. They can meet the internship and residency training requirements of the board as detailed above with the following provisions:

(*a*) Internship and residency training must be served in hospitals approved by the board in the United States.

(*b*) A maximum of the internship and one year of residency training may be allowed for such experience obtained in a small list of foreign hospitals recognized by the board. The other year of residency training must be served in a straight inpatient medical pediatric residency appointment in an approved hospital in the United States.

Citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada, which are not recommended by the Council on Medical Education and Hospitals of the American Medical Association, may be accepted for examination for certification after they have passed successfully parts 1 and 2 of the examinations of the National Board of Medical Examiners, Inc., provided they meet the other requirements of the board as provided in the regulations governing such candidates. It should be noted that this regulation is permissive, not mandatory. Each application will be evaluated individually.

Citizens of Other Countries.—Properly qualified candidates who are permanent residents in and citizens of other countries and are licensed to practice there and who have fulfilled the residency training requirements listed above in the United States or Canada may apply for examination for certification by the American Board of Pediatrics.

Such foreign candidates who are returning to their own country at the end of their training period may be examined without completion of two full years in the practice of pediatrics. The residency training requirements must be completed in full in advance of admission to any part of the examinations.

A special certificate, appropriately identified to distinguish it from the regular certificate of this board, may be issued to such candidates who have passed successfully the examinations of this board after they have completed such a period of practice or further study in their own country which, when added to similar experience in the United States or Canada, make a total of two years of the practice of pediatrics.

APPLICATION

Application must be made on special blanks, which will be furnished by the executive secretary after a preliminary survey of the applicant's training. Applications may be submitted one year in advance of eligibility date; they will not be accepted earlier. The number of candidates admitted to a given written examination will be determined by the number who can be examined orally during that year, plus a reasonable number of alternates.

LETTERS OF RECOMMENDATION

Letters from two competent pediatricians recommending each applicant must be sent to the executive secretary of the board. These letters should not accompany the application but should be sent directly to the executive secretary.

FEES

The application fee is $100.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Written reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year in a full-time medical inpatient residency in an approved institution. He must then reapply as a new candidate and pay a new fee.

POSTPONEMENT OF EXAMINATION

After acceptance of his application a candidate is expected to take the next written examination offered. If desired, he may postpone this examination for one more year. Any further postponement must be for due cause acceptable to the board.

After having passed the written examination, a candidate must appear for oral examination within two years, unless excused for due cause by the board.

After failure in either part 1 or part 2, a candidate must appear for reexamination within two years unless excused for due cause by the board.

V 1
195

Failure to appear for examination within the period indicated above, unless excused by the board, will result in loss of eligibility to appear for examination. In order to be reinstated, a candidate must then submit a new application and a new fee.

PURPOSE OF EXAMINATIONS

The purpose of these examinations is to determine the applicant's competency to practice pediatrics of high quality. Emphasis is therefore placed on practical aspects, but since good practice is founded on sound scientific data, the candidate must be prepared to demonstrate that he has a working knowledge of these basic data.

Clinical and abstract aspects of growth and development are fundamental parts of pediatric training, and about one-fourth of the oral examination is devoted to this phase of the subject. Diagnosis and treatment of disease fill another quarter, and the remainder of the examination is devoted to study and discussion of "cases."

Candidates who are admitted to the oral examination (part 2) will not be informed of their grade on the written portion. Their relative standing in part 1 will, however, be utilized in the final decision with regard to passing.

Candidates who fail after taking part 2 will not be required to retake part 1 but may be advised to do so in order that they may have an opportunity to improve a low score.

CERTIFICATION IN SUBSPECIALTY OF ALLERGY BY THE AMERICAN BOARD OF PEDIATRICS, INC.

Members—Subspecialty Board of Pediatric Allergy

WILLIAM P. BUFFUM, Chairman, Providence, R. I.
WILLIAM C. DEAMER, San Francisco.
JEROME GLASER, Rochester, N. Y.
GEORGE B. LOGAN, Rochester, Minn.
JAMES OVERALL, Nashville, Tenn.
BRET RATNER, New York.

The American Board of Pediatrics, Inc., has established certification in allergy as a subspecialty of pediatrics.

All candidates must pass the written and oral examinations in pediatrics before submitting an application for examination in allergy.

Each allergy application is individually considered and must be accepted by the subspecialty board.

INFORMATION CONCERNING EXAMINATIONS

Allergy examinations consist of written and oral portions. The written examination will be given once a year under a local monitor and must be passed before admission to the oral examination will be authorized. Oral examinations will be held at times and places designated by the chairman of the subspecialty board. Ample notice will be sent to candidates by the executive secretary.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year full time in a satisfactory allergy clinic and its hospital including training in both allergy and pediatrics.

FEES

The application fee for certification in allergy will be $100 effective July 1, 1952.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

Application forms will be forwarded on request to the office of the executive secretary and should be returned to that office when completed. All correspondence should be addressed to him.

REQUIREMENTS

1. Certification in pediatrics.

2. Two years full time of approved allergy residency or fellowship training in an approved clinic and its hospital, or

3. One year full time of approved allergy residency or fellowship training and two years, part time, 200 hours a year in an approved clinic and its activities, or

4. Five years, part time, 200 hours a year in an approved allergy clinic and its activities.

5. Preceptorship alone is not acceptable, but a resident or fellow doing full-time work in allergy may spend part of his time working with private patients in the hospital or in the office of an allergist qualified to give this training.

Until clinics are officially approved the candidate should assure himself that the clinic is satisfactory for training by writing to the executive secretary of the Board of Pediatrics. In general such clinics will be in hospitals that have been accepted by the Council on Medical Education and Hospitals of the American Medical Association and by the American Board of Pediatrics for training in pediatrics, or have been approved for training in allergy by the Board of Pediatric Allergy or of Internal Medicine.

Under all methods of study there must be presented evidence of serious work in research or clinical investigation.

The candidates must be prepared for a searching examination in the theory and practice of allergy. This will include the theory of the underlying mechanisms, animal experimentation, the clinical manifestations in the so-called allergic diseases, especially as they appear in infants and children, and also the allergic factors that may be present in other diseases. They must be prepared to discuss the important diagnostic procedures and methods of treatment and, in controversial matters, they must be familiar with the arguments on both sides of the question.

CERTIFICATE

When accepted the diplomate will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy.

Prospective applicants for certification in the subspecialty of allergy may apply to the executive secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

ROBERT L. BENNETT, Chairman, Warm Springs, Ga.
WILLIAM H. SCHMIDT, Vice-Chairman, Philadelphia.
WILLIAM BIERMAN, New York.
DONALD A. COVALT, New York.
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ARTHUR L. WATKINS, Boston.
WALTER J. ZEITER, Cleveland.
EARL C. ELKINS, Secretary-Treasurer, 200 First, S.W., Rochester, Minn.

QUALIFICATIONS FOR ELIGIBILITY TO EXAMINATION FOR CERTIFICATON

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

A. *General:*

1. Satisfactory moral and ethical standing in the profession.

2. A legal license to practice medicine in one or more of the states of the United States of America or its territories, or the District of Columbia, or one or more of the provinces of Canada.

B. *Professional:*

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association or graduation from a foreign medical school which, in the opinion of the board, offers medical education equivalent to such an approved school.
2. Completion of an internship in a hospital approved by the same Council.

C. *Special Training:*

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals, or laboratories recognized by the same Council and by the American Board of Physical Medicine and Rehabilitation as competent to provide a satisfactory training in physical medicine and rehabilitation. Each year of training in such an approved program counts as two units against a total of eight units, necessary for eligibility to both parts 1 and 2 of the examination (see below). A total of only six credits may be earned in this manner.
2. This period of specialized preparation shall include: (1) graduate training in anatomy (including kinesiology and functional anatomy), physics (including radiation physics, electronics, and medical instrumentation), physiology, pathology, and other basic sciences that are necessary to the proper understanding of physical medicine and rehabilitation; (2) an active experience of not less than two years in hospitals, clinics, dispensaries, and diagnostic laboratories recognized by the Council on Medical Education and Hospitals and the American Board of Physical Medicine and Rehabilitation.
3. An additional period of not less than two years of practice in physical medicine and rehabilitation. One unit of credit is granted for each year of practice in physical medicine and rehabilitation.
4. Experience comparable to specialized training. Training in approved residency programs in closely allied medical-surgical fields may be acceptable in whole or in part, but maximum credit is limited and based on individual interpretation by the board. In selected cases, at the discretion of the board, two years of specialization in physical medicine and rehabilitation may be accepted as equivalent to one year of formal training.

METHOD OF EXAMINATION

The examination for certification by the American Board of Physical Medicine and Rehabilitation is given in two parts. Part 1 is written, part 2, oral. Part 1 alone may be taken after the completion of six units of credit. Upon the completion of part 1, part 2 may be taken after an additional two units of credit are obtained. Parts 1 and 2 combined may be taken only after a total of eight units of credit have been obtained.

The written and oral examination will cover certain aspects of the basic sciences as well as clinical physical medicine and rehabilitation.

A. The basic sciences as related to physical medicine and rehabilitation will include:

1. Anatomy (including kinesiology and functional anatomy).
2. Physics (including radiation physics, electronics, and instrumentation).
3. Physiology (including physiology of movement and physiological effect of the various physical agents used in physical medicine and rehabilitation).
4. Pathology.
5. Other fundamental sciences. The applicant will be examined concerning his knowledge of such subjects as biochemistry and bacteriology as related to physical medicine and rehabilitation.

B. The clinical aspects of physical medicine and rehabilitation will include:

1. Those diseases and conditions that come within the field of physical medicine and rehabilitation. These include arthritis and the various rheumatic diseases, neuromuscular diseases such as poliomyelitis, cerebral palsy, and paraplegia and musculoskeletal diseases, including the large group of traumatic and orthopedic conditions.
2. The clinical usage of such physical agents as heat, water, electricity, ultraviolet radiation, massage and exercise, etc.
3. A knowledge of the role of associated personnel within the field of physical medicine and rehabilitation such as the physical therapist, occupational therapist, clinical psychologist, social service worker, and vocational guidance counselor, and the ability to coordinate the services of such personnel.
4. An understanding of the basic principles of physical medicine and rehabilitation, and the ability to prescribe specific treatment to be executed by technical and ancillary personnel.

APPLICATION

The application form shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, length of time practice has been limited to physical medicine and rehabilitation, medical papers published, and the names of three well-known physicians to whom the board may write for professional and character references. Three letters of reference must be submitted with the application.

The application shall also be accompanied by one recent signed photograph of the candidate mounted on the application, and by the fee of $100, which fee will cover the evaluation and both the written and oral examinations. (In case of rejection of application, this fee will be refunded with the exception of $15, which will be considered an evaluation fee.)

CERTIFICATES

The certificate issued by the American Board of Physical Medicine and Rehabilitation shall be in such form as to comply with the articles of incorporation and bylaws and shall be signed by the chairman and the secretary-treasurer of the board and shall bear the official seal of the board.

Certificates of the board shall be issued to the effect that the applicant has been found qualified to practice physical medicine and rehabilitation.

AMERICAN BOARD OF PLASTIC SURGERY

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FRANK MCDOWELL, Secretary-Treasurer, St. Louis
ESTELLE E. HILLERICH, Corresponding Secretary, 4647 Pershing Ave., St. Louis 8.

GENERAL REQUIREMENTS FOR QUALIFICATION

The following requirements are in agreement with those promulgated by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association.

1. Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Those whose activities are limited to the practice of plastic surgery.

3. This board will accept as applicants for examination only those who are full citizens of the United States or Canada. Notarized statements, not original citizenship papers, attesting to the fact of full citizenship in the United States or Canada must be furnished by foreign-born applicants when the application is filed. Such candidates must have at least two years of practice in plastic surgery in North America after completing the training required by the board.

PROFESSIONAL REQUIREMENTS FOR QUALIFICATION

The board considers the requirements outlined below to be minimal in attaining its purposes and encourages candidates to take advantage of broadening experience in other fields. Candidates must fulfill the requirements that are in force at the time of their examination and/or certification.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable by the board.

2. Completion of an internship of not less than one year in a hospital approved by the same council.

3. Two years of postgraduate work in general surgery, beyond the intern year, as a resident or an assistant resident in a hospital approved by the same council.

4. Training in general plastic surgery, including maxillofacial surgery, for an additional period of not less than two years in a residency approved by the same council, or in a preceptorship approved by the board. In fulfilling this requirement, there is a limit of one year's credit given for all work done in all governmental plastic surgery residencies (Army, Navy, VA hospitals, etc.) regardless of the time put in by trainees in such residencies. It is required that all such trainees take one additional year of approved training in plastic surgery in a civilian residency or preceptorship.

5. During these years of training following the internship year, a candidate must hold positions of increasing responsibility for the care and management of patients with surgical conditions. When a candidate receives his training in more than one institution, it is equally imperative that he hold positions of increasing responsibility. He must have sufficient operative experience to acquire surgical skill and judgment through the performance of surgical operations with a high degree of responsibility, but under circumstances providing adequate opportunity for consultation and advice.

6. An additional period of not less than two years of practice in plastic surgery. If a candidate elects to spend one or two additional years in approved training in plastic surgery, one year of such training will be credited toward the required two years of private practice if it can be demonstrated that the candidate held a position of increasing responsibility. It is imperative that one year be in actual private practice in such instances.

The above training in plastic surgery may be taken as a resident in an approved hospital or under an approved preceptorship offering equivalent training (a list of currently approved preceptorships is available from the board office). By the latter statement it is meant that one may secure the necessary and specified training as an assistant to an accredited plastic surgeon provided suitable facilities for the education of the candidate are offered.

The period of special training should emphasize the relation of the basic sciences—anatomy, pathology, physiology, biochemistry, bacteriology—to the application of surgical principles which are fundamental in all branches of surgery, and especially to plastic surgery. In addition, the candidate must understand and be trained in the following subjects: the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

The board reserves the privilege of requesting lists of operations done solely by the candidate for one or more years, or of requesting special and extra examinations, written or oral and practical, and of requesting any specific data concerning the candidate that may be deemed advisable before making final decision for certification.

Eligibility rulings or an evaluation of a candidate's qualifications or training cannot be made by the secretary or by any one member of the board. Official evaluations of qualifications are made only by the committee on credentials and requirements, or by the entire board where necessary, after a review of the candidate's formal application for such rulings. The applicant must allow at least two months for such requests to make the rounds of the committee.

TRAINING FACILITIES

Residencies.—The American Board of Plastic Surgery, in cooperation with the Council on Medical Education and Hospitals of the A. M. A. and the American College of Surgeons, evaluates training facilities in institutions providing acceptable residencies in plastic surgery. The board does not assume the responsibility for independent inspection and approval of residencies. It will inspect and make recommendations for or against approval of a residency in plastic surgery only after the director of the residency has applied to the Council on Medical Education and Hospitals of the American Medical Association for approval of the residency, and after the Council has notified the board to that effect. Therefore any diplomate of the board wishing approval of a residency under his supervision should apply to the Council for such approval. The board will make its own inspection, preferably at the same time as the A. M. A. Council inspection, and will report its findings to the Council. Upon completion of consideration by the Council and the board, the hospital will be notified by the Council of the joint action that has been taken, and the hospital and the secretary of the board will be notified simultaneously by the Council to avoid any misunderstanding as to the status of the program.

Preceptorships.—In certain instances the board will accept, in lieu of the required two years' training in an approved residency, training in a preceptorship under a fully qualified plastic surgeon when such preceptorship is properly organized and supervised to give the trainee adequate experience and training in plastic surgery of a well-rounded nature. Certain established preceptorships are given full approval. New preceptorship programs will be given tentative approval in advance on presentation to the board by the preceptor of a well-rounded plan of training. In such instances, the trainee will be required to keep a detailed record of his experience, presenting this report to the board at intervals of six months, on a report form supplied by the board on request. If the preceptorship program of training is found adequate in scope, it will be transferred to the fully approved list. In preceptorship programs of training it would be well for the preceptor to report annually to the board the name and qualifications of any preceptee under his supervision and the work done by the preceptee. (Application forms for requesting tentative approval of preceptorship programs of training are available from the board office.) Neither the board nor its individual members can be responsible for the placing of applicants for training. The board considers those residencies approved by the Council on Medical Education and Hospitals of the A. M. A. as acceptable facilities for training in plastic surgery.

It should be kept in mind by all that the primary interest of the board is to encourage well-rounded training in plastic surgery with the aim of producing plastic surgeons capable of doing good work in the wide variety of cases which may come

under their care. The standards set up by the board, both for preliminary general surgery and for specialized plastic surgery training, are established in an effort to further this aim. The quality of the training received should be reflected in the candidate's ability to achieve good results in his practice, and the examinations of the board are an attempt to judge the ability of the candidate in the specialty of plastic surgery.

A residency in plastic surgery is one in which a hospital appointment for training in plastic surgery is given the trainee. In a preceptorship in plastic surgery no such appointment is given.

While the board permits flexibility in training, approved residencies and preceptorships should be under fully qualified plastic surgeons. Those trained in preceptorships will be judged by the candidate's ability to make the most of his training and to show adequate ability in all phases of the subject.

There must be teaching in either a residency or a precpetorship—instruction in the basic sciences and in the basic principles of plastic surgery—if not in actual courses, then by conferences, ward rounds, lectures by men on the service or other services, or by visiting doctors.

A resident or assistant resident in plastic surgery should have a full-time appointment from an A. M. A. Council-approved hospital or hospitals. A preceptee does not have such an appointment. A residency should preferably be in connection with a teaching hospital having medical school affiliations or be under the Dean's Committee of Veterans Administration hospitals. An acceptable residency is one that is approved by the Council on Medical Education and Hospitals of the American Medical Association.

Before training in plastic surgery is begun, the plastic surgeon in charge of the residency or preceptorship should ascertain that the trainee's preliminary training in general surgery meets the requirements of the board, that is, two years of residency training in general surgery after the internship year.

The training in plastic and maxillofacial surgery (at least two years) whether in a residency or a preceptorship, should cover a wide field of plastic surgery, both as to type and anatomic distribution. It should include experience in the treatment of congenital and acquired defects and deformities of the face, neck, body, and extremities, for both functional and esthetic reasons. There should be available sufficient material of a diversified nature so that the trainee will be able to pass the examinations of the board after the period of training and the two additional years of private practice. If the available material on one service is inadequate, the deficiency should be made up by affiliation with another plastic surgeon on another service so that a broad experience will be obtained in plastic surgery. The trainee should be provided an opportunity to operate under the direct supervision of the plastic surgeon in charge, and with increasing ability, should be given an opportunity to operate independently on suitable cases under more remote supervision.

RESIDENCY INFORMATION SERVICE

The Council on Medical Education and Hospitals of the American Medical Association maintains a "Residency Information Service," published quarterly, giving lists of available residency appointments in approved services in the specialties. Anyone having a residency opening in plastic surgery training should submit the information to the Council. This bulletin, showing available openings in residency appointments in plastic surgery, and other specialties, may be had from the Council on request.

MILITARY CREDIT

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

MEDICAL OFFICER'S PROFESSIONAL TRAINING RECORD

The Medical Officer's Professional Training Record (DD Form 408) is a record maintained by individual Medical Corps officers for presentation to the various authorized accrediting boards toward certification. This record is presented by the officer to the boards for evaluation of the miliary experience acquired by Medical Corps officers while serving in the Army Medical Service. This form has been prepared by the Surgeon's General of the armed services with the assistance of the Council on Medical Education and Hospitals of the American Medical Association and is distributed by the offices of the Surgeons General to their personnel. It is highly important that prospective applicants obtain a copy of this form and that it be submitted with their credentials for evaluation by the board.

CASE REPORTS

Upon approval by the board of a candidate's application for certification, each candidate is required to submit to the board 35 or more case reports illustrative of his independent work in the field of general plastic surgery.

Candidates are admitted to examination only after submitting case reports that meet the required standards of the board and that have been approved by the committee on credentials and requirements.

Case reports must be submitted within one year from the time of such request; otherwise a new application must be filed. The case reports shall conform to conditions which the board may from time to time specify.

Case reports must be received in the office of the board by Jan. 1 for those who desire to be considered for the spring (May-June) examinations of the board and by June 1 for the fall (October-November) examinations. There will be no exceptions to these two deadlines.

The 35 case reports must be of a diversified nature and must be submitted to the office of the board together with before and after photographs. They should be of the following distribution:

1. Cleft lip: 1 to 3 cases
2. Cleft palate: 1 to 3 cases
3. Traumatic defects requiring reconstructive surgery:
   (*a*) Face and neck: 2 to 4 cases
   (*b*) Body: 1 to 4 cases
   (*c*) Extremities: 1 to 6 cases
4. Acute burns: 2 to 4 cases
5. Fracture of facial bones, excepting nasal fractures: 1 to 3 cases
6. Esihetic operations of sufficient variety: 6 to 12 cases
7. Plastic surgery of the hand: 2 to 4 cases
8. Malignancies, or conditions prone to malignancies (eradication and repair):
   (*a*) Face: 2 to 4 cases
   (*b*) Body: 1 to 3 cases
   (*c*) Extremities: 2 to 4 cases
9. Congenital anomalies: 1 to 6 cases
   (*a*) Examples:
      (1) Syndactylism
      (2) Congential absence (partial or total) of external ear
      (3) Hypospadias
      (4) Bands (constricting)
      (5) Thyroglossal duct cyst
      (6) Extensive nevi, etc.

To be accepted, case reports must be assembled according to the following instructions. The group must include a variety of material from the entire body rather than a number of cases of one type and should carry the candidate's personal deductions, conclusions, and comments and should be sufficiently detailed to show if the conclusions drawn indicate a grasp of the subject and if the results justify the procedure.

Each case report should be individually assembled, typed on letter-size paper (8½ x 11 in.), with the candidate's name and the number of the case on each page. Each report should have a cover-sheet with the candidate's name, the number of the case,

V 1
195

hospital number, diagnosis, and a brief summary of the case. The pages of each case should be stapled together securely and placed in an ordinary manila letter-file folder (nothing heavier). Do not use paper fasteners of any kind; merely staple the pages together with one staple in the upper left-hand corner. Photographs of conditions, before and after operation, and drawings of operative technique illustrative of each case should be included and attached to each case. Mount the photographs on a sheet of letter-size paper, or manila file-folder paper (nothing heavier), with the name of the candidate and the number of the case indicated. The photographs should be uniform in size, not less than 3 x 4 in. (kodachrome transparencies not acceptable; enlargements accepted), made by a sharp focus lens from untouched negatives with identical lighting conditions, exposure, and developing, not reversed, to show conditions before and after operations with clear detail. Each case report should be placed in a manila letter-file folder with the number of the case and the candidate's name on the outside (upper, right-hand corner) of folder.

Cases should be chosen from the private practice of the candidate or from the hospital or clinic service. The initials, color, age, and occupation of each patient should be stated, as should the name of the hospital where treated and dates of admission, operation, and discharge. The important details of family history, if relevant, and of the previous history should be given. The condition for which the patient consulted candidate should be stated clearly and concisely, indicating previous treatment, if any, and the mental, social, or economic factors involved. The physical examination of the patient with special reference to the existing deformities should be carefully described. All laboratory and other special examinations, such as roentgenograms, which were made should be reported, with a statement of what was determined by them. The indications for operation and for the type of operation employed should be given, and the preliminary treatment and the type of anesthesia used should be stated. A full description of the operative technique with methods of hemostasis, suture, and drainage, if any, and the name of the assistant should be given. The early and late postoperative course and results should be described.

If the case reports and lists of operations are approved, the candidate will receive subsequent information regarding taking the examinations. The board at its discretion may request certification of case reports by the hospital where the operations were performed. The following form should accompany the case reports: "I hereby certify that the planning and essential surgical procedures described herein were carried out by me as an independent operator."

Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications, but on his professional ability as a plastic surgeon, his ethical standing in the community, and the strict limitation of his work to plastic surgery.

A candidate should remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his ability.

EXAMINATIONS

In instances where a candidate submits case reports that do not meet the standards of the board, he will be required to submit additional case reports or an entirely new set of 35 within a period of one year. If this second series of case reports again do not meet the standards of the board, the candidate may be required to take additional training (of length and type specified by the board) before he will be allowed to submit any further case reports.

After a candidate has been notified that he has fulfilled the preliminary requirements and that his case reports have been approved, he will be required to take the qualifying examination within a period of three years.

After approval of the case reports, and prior to the examination, the candidate will be visited at his place of practice by a member or members of the board to observe him operate and to examine a number of his preoperative and postoperative cases.

The qualifying examinations are given twice yearly, in the spring and fall. The spring examination is given immediately preceding, during, or following the annual meeting of the American Association of Plastic Surgeons (usually in May), and the fall examination is given immediately preceding, during, or following the annual meeting of the American Society of Plastic and Reconstructive Surgery (usually in September or October). Candidates are required to go to the designated center for the qualifying examination, which will last three days. These centers will be the city in which the meetings of these two organizations are held if the proper clinic and hospital facilities are available, otherwise in some nearby city where such material is available. Arrangements for all examinations are made by the examination committee.

A written examination will consume all of the first day and half of the second day. An oral and practical examination will consume the afternoon of the second day and all of the third day. The subjects of the written examination are (1) theory and practice of plastic surgery, (2) applied anatomy, applied physiology, (3) pathology, bacteriology, clinical laboratory methods (pharmacology), (4) reaction of tissue to injury, surgical accidents, anesthesia. A general oral examination pertaining to plastic surgery will be given. In the practical part of the examination, the examiners will present a group of patients for examination by the candidates, and the candidates will be quizzed on methods of procedure—diagnosis, treatment, technique, and so on. Slides of preoperative conditions will be shown on a screen and the candidate asked to make a quick diagnosis of the items and to tabulate in the order of their importance the methods of treatment. Microscopic slides of the average pathological tissue falling within the province of the plastic surgeon will be given the candidates, and they will be asked to write a description and diagnosis.

GRADES

To be considered as passing, the candidate will be required to receive a grade of at least 65% in each portion of the written examination and an average grade of 75% on the entire written and oral examination.

REEXAMINATIONS

Candidates who have failed in any portion of the examination may be admitted to another examination after one year, or within three years, except in such cases as the board may for good and sufficient reason deny a candidate the privilege of reexamination. A candidate who fails one reexamination will be admitted for further examination only after submitting evidence of additional study and preparation. The candidate must give 60 days' notice requesting reexamination and pay a fee of $25 for the written examination and $25 for the oral and practical examination. The examiners conducting the first examination will not be eligible to conduct the reexamination.

CERTIFICATION

After a candidate has met the requirements for eligibility and passed the examinations of the board, a certificate attesting his qualifications in plastic surgery will be issued to him by the board, signed by its officers and having the seal of the board affixed thereto. It shall be the prerogative of the board to determine the fitness professionally and ethically of any candidate for its certificate, and the action or decision of the board regarding the certification of any candidate shall be final.

FEES

The fee for application and examination is $150. Of this sum, $25 must accompany the application and the remaining $125 must be paid when the candidate is notified of acceptance for examination. There will be no refunds. This fee may be increased at the discretion of the board. The board is a nonprofit organization, and the fees of candidates are used solely for defraying the actual expenses of the board. The members of the board serve without remuneration. Because of the limited number of surgeons certified by this board it is necessary for a limited time to request a voluntary annual prorata contribution from diplomates after the first year's certification to help defray expenses.

AMERICAN BOARD OF PREVENTIVE MEDICINE

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GENERAL ELIGIBILITY REQUIREMENTS FOR EXAMINATION

1. Good moral character and high ethical and professional standing.

2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the board.

3. An internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the board.

4. Licensure to practice medicine in the United States or in the Dominion of Canada.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive medicine and aviation medicine, one year of which graduate study shall be in a school of public health accredited for the purpose of such graduate study by the American Public Health Association and one year of which shall be in a school of aviation medicine accredited for the purpose of such graduate study by the Council on Medical Education and Hospitals of the American Medical Association; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. *Residency (after internship) of at least one year of supervised experience in aviation medical practice, which included planned instruction, observation, and active participation in a comprehensive, organized program of aviation medicine.

3. Supervised practice of aviation medicine (after internship) of not less than one year, in addition to 1 and 2 above, of special training in or teaching or practice of aviation medicine.

4. A period (after internship) of not less than two years, in addition to 1, 2, and 3 above, of special training, teaching, research or practice of aviation medicine.

5. Limitation of practice to full-time teaching, research, or practice of aviation medicine.

6. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

SPECIAL REQUIREMENTS IN OCCUPATIONAL MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive and occupational medicine in a school of medicine or a school of public health. The schools in which such instruction is provided shall be accredited for graduate study by the Council on Medical Education and Hospitals of the American Medical Association or the American Public Health Association in accordance with the jurisdictions of these accrediting agencies; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. Completion (after internship) of not less than one year, in addition to 1 above, of supervised experience (residency) in occupational medical practice in an industrial or medical organization. This residency shall provide planned instruction, observation and active participation in a comprehensive program of occupational medicine; or a comparable period of experience deemed by the board to be substantially equivalent to such year of supervised experience.

3. A period (after internship) of not less than three years, in addition to 1 and 2 above, of special training in or teaching or practice of occupational medicine.

4. Limitation of practice to full-time teaching, research, or practice of occupational medicine.

FEES

The fee for application and examination is $90, payable as indicated below; additional fees are payable for reexamination as set forth below, but no additional fee is payable for the issuance of a certificate.

Application fee, $15. No application will be considered unless accompanied by the application fee. The application fee is not refundable.

Examination fee, $75. This fee is payable when the candidate is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

No member of the board has the authority to give informal opinions as to the eligibility of the candidates. The determination of eligibility will be made only by the board after receiving full application information. Each candidate must comply with board regulations in effect at the time the examination is taken, and also those in effect at the time the certificate (if any) is issued, regardless of when the original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional information within two years of the filing date of his original application without payment of an additional application fee.

Applicants who are declared eligible for examination but who fail to submit to examination within three years of the date of the filing of the application are required to file a new application and to pay a new application fee.

CERTIFICATION IN OCCUPATIONAL MEDICINE WITHOUT EXAMINATION (THE FOUNDERS GROUP)

The bylaws authorize the board, for a limited period of time, to excuse from examination specialists in occupational medicine who have attained high academic rank in an approved medical school or an accredited school of public health or professional position, or by reason of distinguished achievement in the field of occupational medicine are recognized leaders, or have had a minimum of 10 years of distinguished service in the field of

* Approval of residency training is in the process of development. Until such time as an adequate program of residency is developed, field training will be evaluated by the board on an individual basis. Information as to approved residencies may be obtained from the Council on Medical Education and Hospitals or from the secretary of the board.

V 1
195

occupational medicine and are considered eligible by the board, whether or not they meet the eligibility requirements previously referred to. Applications for consideration as members of the Founders Group must be received not later than July 1, 1956. The application fee must accompany the application, and the examination fee is payable before certification even though the applicant be excused from examination.

EXAMINATIONS

Examinations will be held from time to time and in various places depending upon need as indicated by applications received. Examinations will ordinarily be held in connection with the annual meetings of one or more of the sponsoring societies and may also be held at other times and at other places so located geographically as to minimize travel for the applicants.

The examination consists of three parts: Part 1 consists of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine. Part 2 is a comprehensive written examination designed to test the knowledge of the applicant in the special field in which he requests certification. Part 3 is an oral or practical examination that will usually be held at the completion of the written examinations. An endeavor will be made to adapt the details of the oral or practical examination to each candidate's experience and practice. The examiners will report on each candidate to the assembled board, by which the results of the examination will be considered.

REEXAMINATION

Candidates failing the first examination taken may, upon timely request, be admitted to a second examination within 18 months following the examination failed, upon payment of an additional fee of $15. If the candidate fails the second examination, a period of 11 months must elapse before admission to a third examination. A fee of $25 is required for admission to the third examination. Candidates failing three examinations will not be admitted to any subsequent examinations unless the board so directs.

CERTIFICATION

On satisfactory completion of the examination and proof to the satisfaction of the board that the applicant is eligible for certification, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in the field specified in his application. The certificate will be signed by officers of the board and will have its seal affixed. Each certificate remains the property of the board, but the person to whom it is issued shall be entitled to its possession unless and until it is revoked. Any certificate issued by the board may be revoked if evidence, satisfactory to the board is presented that the applicant was not eligible to receive it at the time of examination or issuance, or that he misstated, misrepresented or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a certificate to any person does not constitute such a person a member of the board.

AMERICAN BOARD OF PROCTOLOGY

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QUALIFICATIONS OF CANDIDATES

General Qualifications and Requirements.—All candidates shall comply with the current regulations of the board, regardless of the time of filing applications. These are as follows:

1. Candidates shall have limited their practice to proctology, shall appear personally before the board, and shall submit to the required examination.

2. They shall deliver to the board an official record of patients hospitalized by them during the year prior to the date of submission of the application if the board requests it.

3. They shall submit a bibliography of papers and books published.

4. They shall possess moral, ethical, and professional qualifications acceptable to the board.

5. They shall possess full citizenship in the country where they practice (limited to countries of North and South America, their possessions and their territories, and the Philippine Islands).

Professional Qualifications.—

1. They shall be graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. They shall possess a license to practice medicine in the country of their residence.

3. They shall have completed an internship, preferably of the general rotating type, of not less than 12 months in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

Special Professional Qualifications.—They shall have completed:

1. Two years of approved general surgical residency and two years of approved proctologic residency; or

2. Three years of approved general surgical residency and two years of approved proctologic preceptеeship; or

3. Two years of approved general surgical residency and three years of approved proctologic preceptеeship.

APPLICATIONS

Each candidate for examination shall submit an application prepared upon the prescribed form, which shall be furnished by the secretary of the board. It shall contain a record of the candidate's premedical and medical training, internships, residencies, preceptеeships, other postgraduate study, hospital and dispensary appointments, teaching positions, service in the armed forces, service in federal, state, or local government, membership in medical societies, and any additional information considered valuable by the board. The application shall be signed by two proctologists. It shall be accompanied by two unmounted autographed recent photographs of the candidate, letters of endorsement from appropriate sources, and the application fee. It shall be filed with the secretary not less than 90 days prior to the date of examination.

EXAMINATIONS

Examinations are conducted at times and places determined by the board and are announced in THE JOURNAL of the American Medical Association. An average of 75% is the passing grade on all examinations. All examination papers are identified only by numbers assigned to candidates, and the examiners do not know the identity of the examinees.

Part 1.—This examination consists of a comprehensive written examination in anatomy, physiology, pathology, bacteriology, biochemistry, and other basic sciences. It is usually held in the spring of the year in several cities of the United States. Candidates who have passed part 1 examinations of the American Board of Surgery or who are diplomates of this board and who

have completed required training in proctology may, upon approval of the American Board of Proctology, be excused from taking part 1 of the examinations of the American Board of Proctology.

Part 2.—This examination consists of comprehensive written and oral examinations on the theory and practice of proctology. It includes questions on roentgenologic interpretation and other subjects considered appropriate by the board. Usually this examination is held in the fall of the year in one city of the United States. The oral portion of the examination is conducted by the members of the board or by designated examiners. An attempt is made to ascertain the candidate's knowledge of current proctologic literature, his knowledge of the basic sciences, the extent of his clinical experience, and other qualifications.

Part 3.—This examination is held in the community in which the candidate conducts his professional activities. It may be omitted at the discretion of the board. Candidates required to take part 3 are notified by the secretary and arrangements for the examination are made that are suitable to the candidate and the examiner. The examination shall involve: (1) surgical operations, (2) hospital rounds, (3) hospital and office records, and (4) office practice.

REEXAMINATIONS

A candidate who fails in part 1 or part 2 may be reexamined after one year has elapsed. The act of filing an application for reexamination is the candidate's responsibility. Candidates who have failed a reexamination may petition the board for another examination. With this petition, acceptable evidence of additional preparation shall be submitted.

FEES AND DUES

Fees.—Application fee. A fee of $25 shall accompany the application.

Examination fee. A fee of $150 is due and payable when the candidate is notified that he has been approved to take part 1 or part 2 examinations.

Reexamination fee. A fee of $50 is due and payable when the candidate is notified that he has been approved for reexamination in either part 1 or part 2 examinations.

Reexamination in Part 3.—Candidates for reexamination in part 3 may be held responsible for payment of expenses incurred by the board in conducting the reexamination. No fee shall be returned to the candidate without board approval. All fees shall be made payable to the American Board of Proctology and shall be sent to the secretary.

Dues.—Each diplomate is required to pay a fee of $10 to the board annually for a period of 10 years following certification.

Fees and dues are utilized to defray expenses incurred by board activities.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

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APPLICATION FOR CERTIFICATES

An application, in order to be considered at any meeting of the board, must be in the hands of the secretary of the board not less than 90 days before the date of such meeting. A proper application form may be obtained from the secretary. Application may be made for certification in psychiatry or in neurology or in both fields. Applications will be formally considered only when made on the official application blank in such form as may be adopted from time to time by the board and when accompanied by an application fee in such amount as may be fixed by the board.

The secretary of the board, on receipt of an application, shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association, after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members of the entire board at any meeting held for such certification.

FORM OF CERTIFICATION

There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certifications shall be in such form as is approved by the board of directors.

GENERAL REQUIREMENTS FOR APPLICANTS

Each applicant for a certificate must establish that:

1. He is a physician duly licensed by law to practice medicine.
2. He is of acceptable ethical and professional standing.
3. He is now a member of the American Medical Association. Exceptions to the foregoing may be made at the discretion of the board for good and sufficient reasons.
4. He has received adequate training in psychiatry or neurology, or both, as a specialty.

CLASSES OF APPLICANTS

Class A.—Applicants who graduated from an approved medical school before the foundation of the board (1934) will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the board will consider the training and experience of the applicant and decide whether or not he will be admitted to the examinations. After Jan. 1, 1954, for such graduates the board will consider 10 years of full-time acceptable experience in psychiatry or neurology in lieu of the formal training requirements. Should the candidate then apply for supplementary certification, the credentials committee will require five years of additional acceptable experience in the supplementary field.

Class B.—Applicants who graduated from an approved medical school after 1934 shall fulfill the following requirements.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose medical training has been received outside the United States and Canada, such training must be satisfactory to the afore-mentioned Council.

2. Completion of a year's internship approved by the same Council in general medicine, general surgery, pediatrics, or a rotating service.

3. The nine month wartime internships will be accepted as an equivalent of one year.

SPECIALIZED TRAINING

Admission to the examination for certification in psychiatry or in neurology requires a total of five calendar years of training and experience, three years of which must be specialized training obtained in approved training centers, plus two years of experience. Admission to the examination for certification in both psychiatry and neurology requires a total of six calendar years of training and experience, five years of which must be

specialized training obtained in approved training centers, plus one year of experience. The specialized training may be subdivided into two and one-half years each in psychiatry and neurology or three years in one subject and two years in the other. The required years of experience should be spent in clinical practice with major responsibility for the care of patients.

This training for psychiatrists should include clinical work with psychoneurotic and psychotic patients, combined with the study of basic psychiatric sciences, medical and social psychology, psychopathology, psychotherapy, and the physiological therapies, including a basic knowledge of the form, function, and pertinent pathology of the nervous system. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training period should include instruction in the psychiatric aspects of general medical and surgical conditions and the behavior disorders of children and adolescents sufficient to develop practical ability to direct the treatment of such conditions. It should also include collaborative work with social workers, clinical psychologists, courts, and other social agencies. The training program of the candidate for certification in psychiatry should include sufficient training in neurology to enable him to recognize and to evaluate the evidences of organic neurological disease.

The training for neurologists should be based on clinical work with adults and children with neurological disorders, including the neurological complications of medical and surgical conditions. This should be combined with study of basic neurological sciences, neuroanatomy, neurophysiology, neuropathology, and neuroroentgenology. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training should include sufficient training in psychiatry to enable the candidate to recognize and to evaluate the common psychiatric reactions.

The board offers the foregoing two paragraphs as an outline of desirable training. If, however, the candidate has evidence of equivalent qualifications of training and experience not in the pattern here formulated, this evidence with appropriate documentary support may be included in his application for evaluation and possible approval by the board.

Candidates seeking certification in both neurology and psychiatry or supplementary certification in one after being certified in the other must submit evidence satisfactory to the board of an additional two years of full-time basic training in the supplementary specialty.

Thus, no candidate is eligible for examination by the board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of special training and experience in neurology and psychiatry for certification in both neurology and psychiatry.

The board will give not more than six months of credit for not less than six months of training in an approved training center for internal medicine or pediatrics in lieu of six months of experience to candidates for the certificate in psychiatry or neurology, but not to candidates for certification in both psychiatry and neurology.

The board will give credit for one year of training in child psychiatry providing it is the third year of the required three years of special training required by the board and providing it is taken in a center approved by this board for training in child psychiatry. After July 1, 1956, training credit for work in the field of child psychiatry may be gained only by participation in a hospital residency training program that is regularly approved. After that date, all independent training approval of psychiatric clinics for children is discontinued.

The list of training programs approved by this board and by the Council on Medical Education and Hospitals of the American Medical Association may be found in the current issue of the Internship and Residency Number of THE JOURNAL.

TRAINING IN THE ARMED FORCES

Credit will be granted for one year of wartime military service in the Army, Navy, Public Health Service, and Veterans Administration. Wartime to this board means Dec. 7, 1941, to Feb. 15, 1946. Further credit for specialized training will be granted only if the candidate has received training in an institution recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by this board. Time beyond one year spent in the above government agencies may be credited to experience providing the candidate has been regularly assigned to a service in neurology or psychiatry.

Training and experience credit toward requirements for examination will be granted for military duty in present emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full-time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full-time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time. For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

EXAMINATIONS

Dates and places of examinations are set by the board at its discretion and shall be announced in THE JOURNAL, in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Diseases*, and in the *A. M. A. Archives of Neurology and Psychiatry*.

Though the purpose of the examination is to test the competence of the candidate in psychiatry or neurology or both, it must not be forgotten that both these medical disciplines constitute part of the broad field of general medicine. The board requires some proficiency in neurology on the part of those it certifies in psychiatry, and vice versa, but examines the candidate in accordance with the certificate he seeks. The examinations will be of such type that no adequately trained person will fail, and yet they will be sufficiently searching so that the specialist in fact may be separated from the specialist in name. The practical examination will include the examination of patients under the supervision of the examiner. The manner of examining patients and the reasoning and deductions therefrom will constitute an important part of the examination. Oral and practical examinations will be given in the basic sciences with special regard to their clinical implications. Written examinations may be given at the discretion of the board. The examination for certification in psychiatry will differ from the examination for certification in neurology.

PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of $35 which is not returnable. If a preliminary written examination has been decreed, an additional $25 fee will be required at the time of the applicant's acceptance. When notified by the secretary that he is eligible for the oral and practical examination, the candidate shall send to the secretary an examination fee of $65. A candidate who has been certified in either psychiatry or neurology, and who has been admitted to supplementary examination for the other certificate, shall pay an additional examination fee of $65.

A candidate who has failed in one examination is eligible for reexamination within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees. If he fails the reexamination, he may, after two years have elapsed, submit a new application and $35 fee, present evidence of further training, and pay an examination fee of $65.

A candidate who fails in one or two subjects is eligible for reexamination in those subjects within one year on payment of a reexamination fee of $50. After the year has elapsed he

must submit a new application and pay new application and examination fees and repeat the entire examination. If he fails the reexamination, he may apply again for the complete examination after two years on submission of evidence of further training and on payment of an application fee of $35. If admitted to the examination, he must pay a new examination fee of $65.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the secretary at least six weeks before the date of the examination will forfeit his examination fee. Any candidate who fails to appear for examination within a period of three years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

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D. S. Childs, Vice-President, Syracuse, N. Y.
John D. Camp, Los Angeles.
A. H. Dowdy, Los Angeles.
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Douglas Quick, New York.
Leo G. Rigler, Minneapolis.
Laurence Robbins, Boston.
B. P. Widmann, Philadelphia.
B. R. Kirklin, Secretary-Treasurer, Kahler Hotel Building, Rochester, Minn.

CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges, or license to practice radiology. Certificates of the board shall be issued on one of four forms:

1. A certificate to the effect that the applicant has been found qualified to practice radiology in all of its branches.

2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (*a*) roentgenology, (*b*) diagnostic roentgenology, (*c*) therapeutic radiology.

3. A certificate to the effect that the applicant has been found qualified to practice radiological physics in all of its branches.

4. A certificate to the effect that the applicant has been found qualified to practice radiological physics in one or more of the following special fields: (*a*) roentgen-ray and gamma-ray physics, (*b*) medical nuclear physics.

DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1. Radiology is that branch of medicine that deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2. Roentgenology is that branch of radiology that deals with diagnostic and therapeutic application of roentgen rays.

3. Diagnostic roentgenology is that branch of radiology that deals with the diagnostic application of roentgen rays.

4. Therapeutic radiology is that branch of radiology that deals with the therapeutic application of roentgen rays, radium, and radioactive isotopes.

5. Radiological physics is that branch of physics that deals with the medical application of roentgen rays, gamma rays, radioisotopes, nuclear reactions, and particle accelerators.

6. Roentgen-ray and gamma-ray physics is that branch of radiological physics that deals with roentgen rays and gamma rays.

7. Medical nuclear physics is that branch of radiological physics that deals with radioisotopes, nuclear reactions, and particle accelerators.

GENERAL REQUIREMENTS AND QUALIFICATIONS

Each applicant for admission to the examination for a certificate in radiology shall be required to present evidence that he has met the following standards:

1. Satisfactory moral and ethical standing in the profession.

2. A license to practice medicine in the state or county in which he resides.

3. The applicant holds himself out to be a specialist in radiology or one of its branches as defined under "definitions" and devotes his time to the practice of radiology or one of its branches.

4. He is a citizen of the United States or Canada. Candidates from other countries must be permanent residents of that country and citizens thereof.

PROFESSIONAL EDUCATION

1. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

1. After completion of the internship there shall be a period of special training in radiology of not less than three years in clinics, hospitals, or dispensaries recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in radiology. This period of specialized training shall include:

(*a*) Graduate training in pathology, radiation physics, and radiobiology. A period of six months full-time training in pathological anatomy is recommended but where this is not possible to arrange, the student during his three-year training period, may, by attending pathological conferences and postmortem examinations, and by studying removed tissues, receive adequate training in pathology. It is recommended that radiation physics be taught by a combination of didactic lectures, practical examples, and direct clinical demonstrations.

(*b*) An active experience (residency) of not less than 30 months in an institution, the radiological department of which is recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as capable of providing satisfactory training.

(*c*) Examination in the basic sciences of radiology as well as the clinical aspects thereof. These examinations should be given by the student's instructors in order to allow those responsible for his training to certify to the board that he is adequately prepared.

APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical, and radiological), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiological literature, his membership in medical societies, and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs, and the fee of $100 at least six months before the date of the examination.

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195

FEE

A fee of $100 must accompany each application blank. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. As the number of candidates decreases, it may become necessary to raise the fee.

EXAMINATIONS

Each year the board will hold two examinations. The first will be in the spring and the second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology, and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics, and radiobiology, as well as the clinical application of roentgen rays, radium, and radioactive isotopes. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiences.

REEXAMINATIONS

If the candidate fails in the first examination he will be admitted to a second examination after one year has elapsed, but not after more than three years. He must give 90 days' notice of his intention to appear for reexamination and pay an additional fee of $50. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $100.

A candidate having failed twice may, after one year has elapsed, file a new application, which must be accompanied by the fee of $100.

AMERICAN BOARD OF SURGERY

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JOEL W. BAKER, Seattle.
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WILLIAM H. SNYDER JR., Los Angeles.
JOHN M. WAUGH, Rochester, Minn.
JOHN B. FLICK, Secretary-Treasurer, 225 S. 15th St., Philadelphia 2.
CLETUS W. SCHWEGMAN, Associate Secretary, Philadelphia.
JOHN J. MCKEOWN JR., Assistant Secretary, Philadelphia.

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession and in the community which is satisfactory to the board.

2. Engagement in the practice of surgery.

PRELIMINARY TRAINING

1. Graduation from an approved medical school in the United States or Canada or from medical schools acceptable to the board in other countries.

2. Completion of an internship (straight or rotating) of not less than one year in a hospital approved by the Council of the A. M. A. or its equivalent in the opinion of the board.

SPECIAL TRAINING

The American Board of Surgery is guided by the evaluation of residency training programs made by the conference committee on graduate training in surgery.

The board interprets the term "general surgery" in a comprehensive manner and expects candidates to have knowledge of the basic principles applied in the treatment of fractures, trauma, head injuries, and of the more common procedures in plastic, gynecologic, orthopedic, thoracic, and urologic surgery. Some elasticity in the training programs will be allowed individuals with preference for specialized fields, experimental surgery, or research. In such programs the integration of basic sciences, particularly pathology, with clinical training is superior to formal courses.

Requirements for examination are subject to change and in each case are as published in the board's most recent Booklet of Information at the time application is submitted.

GROUPS 1 AND 2

The requirements for examination may be fulfilled by either of the two programs outlined below. Both of these educational programs are considered to be minimal in attaining their purposes.

The board may, at its discretion, require that a satisfactory operative report be filed before the candidate's eligibility for examination is considered. Such a report may be made by a member of the board, Founders Group, or one certified by examination designated to be present during a major operative procedure performed by the candidate.

Group 1.—Completion of a graded residency in surgery of at least four years in an institution or institutions acceptable to the board and approved for four years of training by the conference committee on graduate training in surgery. The final year of the program must have been spent in the capacity of senior or chief resident in surgery.

If the hospital residency training is for a longer period than four years the candidate who completes four years without assuming the responsibilities of the final year cannot be considered in the Group 1 category. Such a candidate must qualify as in Group 2 after a total of at least five years, one year of which may be spent in practice limited to surgery carried out under acceptable supervision.

Credit will be granted for surgical internship to a candidate who has completed one other year of acceptable internship when the surgical internship is part of a graded residency approved for four years by the conference committee.

Group 2.—Completion of a graded residency in surgery of at least three years in an institution or institutions acceptable to the board and approved for three years of training by the conference committee on graduate training in surgery. The final year must have been spent in the capacity of senior or chief resident in surgery.

Credit will be granted for surgical internship to a candidate who has completed one other year of acceptable internship when the surgical internship is part of a graded residency approved for three years by the conference committee.

Two additional years of training beyond the three years of residency to complete a total of five are necessary to meet the requirements for examination. These may have been spent (*a*) in practice limited to surgery carried out under acceptable supervision, (*b*) in the study of surgery and the basic sciences in an approved graduate school of medicine, (no more than one year's credit is granted for work in basic sciences), and (*c*) in surgical training acceptable to the board in the federal services.

By "acceptable supervision" is meant an arrangement with a preceptor suitable to the board who will assume responsibility for the candidate's further training. The supervising surgeon will be required to inform the board in writing of his acceptance of the responsibility. The supervising surgeon must vouch for the candidate's integrity, surgical judgment, and technical skill. Sufficient operative work performed by the candidate under supervision to fortify residency training must be attested to by the preceptor in a statement submitted to the board at the time the candidate makes application for examination. Before considering eligibility of the candidate for examination the candidate will be required to submit to the board a list of the operative procedures performed by him during the period of supervised practice of surgery. The acceptance of supervised practice in the fulfillment of part of the board's requirements is contigent upon the candidate having had adequate clinical opportunities with considerable responsibility in the care of patients, including the performance of major operative procedures under supervision.

The study of surgery and the basic sciences in an approved graduate school of medicine must be full time and extend over a period of not less than nine months. No more than 12 months' credit will be extended for such study. Six months' credit may be allowed for a single basic science such as pathology, physiology, or anatomy. Credit not to exceed one year may be extended for surgical research. Such graduate work will not be credited as part of a three year residency program.

BASIC SCIENCES

A fundamental concept of an approved residency in general surgery requires that the program provide for properly organized, integrated and progressively graded clinical training in the specialty. This concept requires a continuity of clinical experience under the supervision of the surgical staff of the hospital or hospitals in which such training is conducted. Accordingly, the American Board of Surgery while recognizing the value of formal courses in the basic sciences, will not accept these courses as part of a three or four-year program, in lieu of clinical experience. When provision is made for the resident to attend such courses, they will be accepted by the American Board of Surgery as credit toward the practice requirement, in addition to an approved three-year residency (Group 2 candidates). An approved four year residency may include a research project or an assignment to a basic science department such as pathology provided this is an integral part of the residency program. The final year of a four year residency, however, must be spent in clinical surgery in the parent institution.

MILITARY CREDIT

Credit may be extended to those candidates who have served in military hospitals other than those approved for residency training provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical materal and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

LICENSE TO PRACTICE

The board requires, prior to issuance of a certificate, that candidates who are citizens of the United States or Canada have a valid license to practice in the nation of permanent residence except in those situations in which a license to practice is not required, such as the practice of surgery by commissioned officers in the Army, Navy, or public health services of these countries.

REQUIREMENTS FOR FOREIGN-BORN AND FOREIGN-TRAINED APPLICANTS

Candidates must have completed at least the three year residency requirements in an approved hospital in the United States or Canada. In addition, they are required to have a valid license to practice in the nation of their permanent residence. The examination committee may, in individual instances, accept foreign training as the equivalent of acceptable residency training in the United States.

APPLICATIONS

Prospective candidates for examination by the board should carefully read the board's requirements as set forth in its Booklet of Information. If, after becoming familiar with the requirements, the candidate needs advice as to his training, such may be had by writing to the board's office. When a candidate's training seems to meet the requirements, an application blank will be mailed. The processing of the completed application requires a minimum of three months by the board's office. The candidate will then be notified by the secretary as to his acceptability for examination, his deferment, or his ineligibility.

The eligibility of a candidate whose training in some respects does not conform to requirements published above will require the action of the examination committee of the board, which may delay the candidate's notification of acceptability. Every candidate's final acceptability for examination is based not only upon the evaluation of his training qualifications, but upon information available to the board concerning his professional ability as a surgeon and his ethical standing in the community.

Candidates are required to complete their training and meet all other requirements of the board before submitting an application for examination. Candidates are notified of their eligibility for the part 1 examination as soon as their applications have been approved and are sent a list of centers from which they may select the center of their choice.

THE FOUNDERS GROUP

The Founders Group, to which were admitted those who had already amply demonstrated their fitness as trained specialists in surgery, was closed in January, 1940.

EXAMINATIONS

The qualifying examination is divided into part 1 (written) and part 2 (clinical, bedside, and laboratory). In both of these, as previously stated, a knowledge of the practical application of the sciences fundamental to surgery is required.

Part 1.—The examination is given simultaneously in as many centers throughout the United States as the board may determine suitable for the purpose and in certain military centers abroad. It is held twice a year—in the spring and in the fall.

Requests for a particular center should be made to the board's office well in advance of the date set for examination.

The examination in part 1 is of the objective, multiple-choice type, and covers a half-day session. This examination is designed to cover general surgical problems including the application of the basic sciences of surgery to these problems. Questions are of various types, and include case histories, questions indicating ability in judging cause and effect, and questions illustrating comparisons and relationships. The tests are written by members of the board with the aid of test specialists of the educational testing service.

Part 2.—The examination is conducted by members of the board and selected diplomates in various centers in the United States.

The part 2 examination is oral and practical. The schedule is arranged somewhat as follows:

8:15 A.M.—Registration

9 A.M. to 1 P.M.—Clinical surgery (diagnosis, management, and the application of physiology, biochemistry, and bacteriology). The interpretation of roentgenographic studies also may be included.

2 to 5 P.M.—Applied anatomy and surgical pathology.

GRADES

A candidate must receive a grade of 75% in part 1, and a grade of 75% in all three subjects, clinical surgery, surgical pathology, and applied anatomy in part 2, to be entitled to the board's certificate.

REEXAMINATIONS

Part 1.—Candidates who fail part 1 are required to wait one year before becoming eligible for reexamination.

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195

Part 2.—Candidates who fail part 2 in clinical surgery or who fail both anatomy and pathology are required to wait one year before establishing eligibility for reexamination. Those who fail only anatomy or pathology are required to wait six months. The board expects that during this period the candidate will make a reasonable effort to prepare himself in the subject or subjects in which he has failed.

Should a candidate fail a reexamination in part 1 or part 2, the examination committee will consider an appeal for further examination privileges after the lapse of two years, provided satisfactory evidence of further preparation for examination is submitted. The board, however, for good and sufficient reason, may deny a candidate the privilege of further examination.

FEES

The fee for examination is $150 payable as follows: $25 for registration, $50 for part 1, and $75 for part 2.

Candidates are required to pay a fee of $50 for reexamination in part 1, $75 for reexamination in part 2, in its entirety, and $25 for reexamination in a single subject.

This board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses, to aid in improving existing opportunities for the training of surgeons. The members of the board serve without remuneration.

CERTIFICATE

After meeting the requirements for eligibility and passing the examinations, a certificate attesting to a candidate's qualification in surgery will be issued by the board, signed by its officers.

REVOCATION OF CERTIFICATE

Any certificate issued by the board shall be subject to revocation at any time in case it shall determine in its sole judgment, that a candidate who has received a certificate was not properly qualified to receive it.

CERTIFICATION IN THORACIC SURGERY

Diplomates of the American Board of Surgery wishing to become certified in thoracic surgery are advised to communicate with the secretary of the Board of Thoracic Surgery, Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2. This board is an affiliate of the American Board of Surgery.

BOARD OF THORACIC SURGERY

(An Affiliate of the American Board of Surgery)

RICHARD H. SWEET, Chairman, Boston.
WILLIAM E. ADAMS, Vice-Chairman, Chicago.
THOMAS H. BURFORD, St. Louis.
O. THERON CLAGETT, Rochester, Minn.
MICHAEL E. DEBAKEY, Houston, Texas.
JOSEPH W. GALE, Madison, Wis.
JULIAN JOHNSON, Philadelphia.
JOHN C. JONES, Los Angeles.
PAUL C. SAMSON, Oakland, Calif.
ROBERT H. WYLIE, New York.
WILLIAM M. TUTTLE, Secretary-Treasurer, 1151 Taylor Ave., Detroit 2.

FUNCTIONS OF THE BOARD

1. To select Founder Members. For this group, surgeons of the United States and Canada were chosen who had made meritorious contributions to thoracic surgery.

The Founders Group was kept open for two years after organization of the board.

It was officially closed April 14, 1951.

2. To conduct examinations of satisfactory candidates who seek certification by the board.

3. To improve the opportunities for the training of thoracic surgeons.

4. To set up principles of education to guide young surgeons who desire to prepare themselves for proficiency in thoracic surgery.

5. To issue certificates of qualification to all those meeting the board's requirements.

REQUIREMENTS

1. Certification by the American Board of Surgery.

2. Two years' training in thoracic surgery approved by the Board of Thoracic Surgery, or meritorious contributions to thoracic surgery. One of these two years may be spent during the four years of training in surgery required by the American Board of Surgery.

3. Written, oral, and practical examinations.

DEFINITION OF WHAT IS CONSIDERED ACCEPTABLE TRAINING IN THORACIC SURGERY

To qualify for the examination in thoracic surgery, the candidate shall have had two years of training in an active, well-integrated thoracic surgical clinic or clinics, or the equivalent amount of thoracic surgical training, on a mixed service consisting of thoracic and nonthoracic surgical cases. Adequate training in both the tuberculous and nontuberculous aspects of thoracic surgery is expected. In order to obtain this objective, combined residencies between institutions of different types may be advantageous. It is also required that the candidate be familiar with the basic sciences as related to thoracic surgery. Under exceptional circumstances certain surgeons may, by virtue of recognized proficiency in the surgical treatment of thoracic diseases, qualify for the examination at the discretion of the board.

APPLICATIONS

Prospective candidates desiring to apply for examination should consider whether they are able to meet the minimum requirements of the board. They should then submit a letter to the secretary's office outlining briefly their training and experience in thoracic surgery and should ask for an application form. An application form will not be sent unless evidence is submitted in a letter indicating that the prospective applicant appears to meet the minimum requirements.

EXAMINATIONS

The qualifying examinations are divided into two parts. Part 1 is written, and part 2 is an oral examination in clinical surgery, roentgenogram interpretation, and pathology.

Part 1.—This examination will be given simultaneously at least once a year in as many centers throughout the country as the board may determine suitable for this purpose.

Part 2.—In order to be eligible for part 2 a candidate must have successfully completed part 1. Examinations in part 2 are conducted in certain centers of the country selected by the board. After having passed part 1, a candidate must appear for part 2 within two years unless excused for due cause by the board.

REEXAMINATIONS

Those persons who fail part 1 or part 2 will be required to wait one year before they can retake the part which they failed. Those who fail twice will be required to wait for a period of two years. Candidates who are unsuccessful after three attempts will be required to wait three years before requesting reconsideration. The board may at its discretion deny the candidates the privilege of reexamination.

Candidates declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application will be required to file a new and current application and pay a new examination fee. Also, a candidate who has failed in an examination (part 1 or part 2) and who does not apply for reexamination within three years shall be required to make a new application and pay a new examination fee.

FEES

For the special examination in thoracic surgery and the issuing of a certificate, the fee will be $100. Fifteen dollars of this fee is to accompany the application and will be considered as a registration fee. It is nonreturnable to the applicant in case he is disapproved for examination.

The fee for reexamination will be $50.

AMERICAN BOARD OF UROLOGY

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Office of the Secretary-Treasurer, 30 Westwood Rd., Minneapolis 16.

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A. I. DODSON, Richmond, Va.

PURPOSES OF THE BOARD

The first objective of the American Board of Urology is to render better service to the public by ascertaining the competency of any physician or surgeon who is specializing, or who wishes to specialize, in the field of urology. It will investigate the curricula of medical schools and will encourage adequate facilities for graduate instruction in urology, thus elevating the standards and advancing the cause of urology.

FUNCTIONS OF THE BOARD

A. The board will arrange and conduct examinations testing the qualifications of volunteer candidates.

B. The board will grant and issue certificates to accepted candidates duly licensed by law. It also holds the power to revoke the same.

C. The board will endeavor to serve the public, hospitals, medical schools, medical societies, and practitioners of medicine and surgery by preparing lists of urologists whom it has certified.

LIMITATIONS OF FUNCTIONS OF THE BOARD

The conferring of the degrees doctor of medicine or bachelor of medicine remains with the universities, where it belongs. This board makes no attempt to control the practice of urology by license or legal regulation and in no way interferes with or limits the professional activities of any duly licensed physician.

A list of approved residencies for training in urology may be found in the Internship and Residency Number of THE JOURNAL of the American Medical Association.

Training programs in urology are approved by a residency review committee consisting of members from this board and representatives from the Council on Medical Education and Hospitals of the American Medical Association.

REQUIREMENTS FOR ALL APPLICANTS

A. Application for certification must be made on a special form. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials and by $50 of the examination fee.

B. The applicant must have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association and must have completed an internship of not less than one year in a hospital approved by the same council.

Requirements of graduates of foreign medical schools shall conform to and be similar to the requirements as demanded of the applicants for the accepted medical schools in the United States and Canada. Such applications will be considered by the full board on individual merits.

C. The applicant must establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he is a member of the county district or territorial medical society of his place of practice.

D. The applicant must establish that he has received special graduate training as follows:

1. An approved internship of at least one year.
2. One year in the basic sciences or clinical studies basic to urology, or one year residency in general surgery or internal medicine.
3. An approved graduated three year residency in urology leading to competency in all its phases.

E. The applicant must have an additional period of not less than two years in the practice of urology in the city of his office or place of practice.

F. The applicant must assure the board that he is engaged in the practice of urology and intends to continue to be so engaged.

G. Applicants whose postinternship training started prior to July 1, 1955, will be required to have a total of three years residency, two years of which must have been in approved graduated training in urology and one year preceding in studies consisting of clinical studies basic to urology. These may consist of general surgery or internal medicine.

Applicants who started postinternship training after July 1, 1955, but before July 1, 1957, may fulfill their requirements by completing a four year training consisting of:

1. One year in general surgery, a two year approved graduated urologic residency and one initial year in the basic sciences or clinical studies underlying urology, or
2. One year in general surgery, two years formal training in urology, described in 1 above, and one year of credit for two years of a preceptorship, approved by the board.

FEE

The examination fee is $150. (This fee will be increased when the expense of the examinations and other activities of the board demand.) Fifty dollars must accompany the application. If, upon investigation, an applicant is found lacking in any of the requirements stated above, he will be notified that he is ineligible for examination. One hundred dollars must be paid when the application has been processed. Neither fee shall be returnable in any event.

Applications for certification shall be examined by the credentials committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary.

If a candidate fails, he will be permitted a second examination after one year or within three years without additional fee, but he must give sixty days' notice of his intention to appear for reexamination. After an applicant has failed twice he may file a new application and pay a second fee.

A candidate who has been failed twice in any part of the examinations may be required to have additional training in accordance with recommendations from the credentials committee and from the full board before he may be permitted further examination.

REQUIREMENTS FOR CERTIFICATION

The requirements for certification include: evidence of hospital practice including the presentation of reports of 25 representative (not necessarily consecutive) major urologic cases from practice, which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; a written examination; pathology and oral clinical examinations.

A. Evidences of Hospital Practice and Case Reports:

An index, in consecutive order, of all major and minor urologic surgery (including endoscopy) done during the last two years of practice must be presented. This index must be verified by the various hospital administrators.

The reports of 25 major urologic cases must be representative reports from private practice. These reports must be typewritten on 8½ by 11 paper and in duplicate, but need not be on any special form. Please file the duplicate in your own office. This second copy will be called for when and if it is needed.

Complete index lists must accompany the reports. If they are obtained from more than one hospital a separate index list of each group should be provided. These lists must state the operator's name at the head of each page, the name (or initials) of the patient, the hospital number, and the name and date of operation. Statements from the superintendents of the hospitals attesting that the candidate was the operator must be included.

The applicant must personally prepare the case reports, remembering that they are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his competence as a urologist.

The deadline for the receipt of case reports each year is Sept. 1. The case reports should be prepared as follows:

1. Heading, including identification of patient, hospital number and name or initial, age, marital status, sex, occupation, diagnosis, dates of hospitalization, date and name of operation, and outcome.

2. Complete history, including chief complaint, present and past history, family history, review of systems, etc.

3. Complete physical examination, including temperature, pulse, respiration, and blood pressure.

4. Initial laboratory and x-ray examinations.

5. Admitting diagnosis, based on above, with reasons for making this diagnosis.

6. Indications for further management and description of same in chronologic order together with findings and outcome, as they occurred. This should include detailed description of all subsequent laboratory and x-ray findings, final preoperative diagnosis and reasons for same, and major and minor surgical procedures. This should include also a detailed description of all other treatment and findings such as administration of drugs and fluids, morbidity, complications, consultations, use of special drainage, etc. A detailed description of the postoperative course including complications and outcome should be given. If autopsy is done this should be reported.

7. A follow-up of patient's course after dismissal from the hospital.

8. Final summary of the case. This must include the candidate's interpretation of the record in terms of pathology; the basis for the diagnosis; the facts that determined the treatment prescribed, whether surgical or otherwise; the course of treatment to be pursued following discharge from the hospital or clinic; and a critical discussion of the knowledge gained from the proper handling of the case, or from errors made (if any) in the diagnosis and method of treatment.

9. The entire record should be compiled as chronologically as possible and must contain dates of all data.

B. Written Examination:

The written examination is designed to test the candidate's preparation in and his knowledge of the whole field of urology, including the subjects: clinical urology, pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology. These may be held on certain dates simultaneously in different parts of the country at places convenient for candidates.

C. Pathology:

The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. It will be held at the time of the oral examination.

D. Oral-Clinical Examination:

This will consist of discussions of common urologic conditions. The subjects forming the basis of this examination are urography; diseases of the genital organs, including the prostate; diseases of the urinary bladder; and diseases of the ureters and kidneys. The examination may deal directly with data found in the case reports which the candidate has submitted. It will ascertain the candidate's familiarity with recent literature, the breadth of his clinical experience, and his general qualifications for practice in the specialty of urology.

The professional adaptability of each candidate will be investigated in an attempt to determine his ethical conduct and his attitude toward his patients and fellow practitioners.

FINAL ACTION OF THE BOARD

Final action concerning each applicant is made by the entire board and is based on the applicant's training, his professional record, his attainments in the field of urology, and the results of the examinations. Any competent urologist with the required training will have no difficulty obtaining the board's certificate. This board is organized not to prevent qualified urologists from obtaining certificates but to assist them in becoming recognized in their communities as men competent to practice in the special field of urology.

REVOCATION OF CERTIFICATE

Certificates issued by this board are subject to the provisions of the articles of incorporation and the bylaws. According to article IX, section 4, of the bylaws, "Each certificate shall be subject to revocation in the event that:

A. The issuance of such certificate or its receipt by the physician so certified shall have been contrary to, or in violation of, any provision of the certificate of incorporation of this, the American Board of Urology, or of the bylaws; or

B. The physician or party certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to, or could have been ascertained by, the directors of the board at the time of the issuance of such certificate; or

C. The physician or party so certified shall have made any mis-statement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or

D. The physician so certified, at any time while continuing to practice, shall cease to practice urology; or

E. The physician so certified shall at any time have neglected to maintain the degree of competency in the practice of the specialty of urology as set up by the board, and shall refuse to submit to reexamination by the board.

The board of trustees of this corporation shall have the sole power, jurisdiction, and right to determine and decide whether or not the evidence or information before it is sufficient to constitute one of the grounds for revocation of any certificate issued by this corporation. The board of trustees may, however, in its discretion, require any physician so certified to appear before the board of trustees or before any one or more of them or before any individual or individuals designated by the board of trustees, upon not less than 20 days written notice, and to show cause, at the time and place specified in such notice, why his certificate should not be revoked upon any one or more of the above-described grounds specified in such notice. The failure of any physician so notified to appear as required in such notice, without due excuse deemed sufficient to the board of trustees, shall constitute, ipso facto, cause for revocation of his certificate. The decisions of the board of trustees relating to all matters under this section 4 shall be final and binding.

Information regarding the Advisory Board for Medical Specialties and the 19 Examining Boards for Medical Specialties, which appears in this issue, and the data included in the Internship and Residency Number, Sept. 24, will be published in the Directory of Approved Internships and Residencies as a separate reprint.

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ESOPHAGEAL VARICES

Esophageal varices develop secondarily to partial or complete obstruction of the portal blood flow at the junction of the esophagus and cardia of the stomach between the coronary vein, a branch of the portal circulation, and the esophageal veins, branches of the azygos vein, of the systemic circulation. Portal hypertension may be one of two types, intrahepatic or extrahepatic, or a combination of both. Apparently, the portacaval shunt created by the natural anastomosis of the two systems at the gastroesophageal junction is inadequate to prevent increased intraportal tension and the consequent development of esophageal varices.

Chiles and his co-workers [1] at the Mayo Clinic found that, in a study of 80 cases of ruptured esophageal varices in which hemorrhage led to death, rupture was caused in 39% of the cases by the increased hydrostatic pressure within the varix and in 50% by ulceration of the varix. In the majority of the cases, ulceration appeared to be a complicating factor that hastened the impending perforation of the vein. Hemorrhage from the esophageal varices, particularly in portal hypertension with cirrhosis of the liver, is a frequent cause of death, second only to peptic ulcer as a cause of massive upper gastrointestinal bleeding.

Attempts at lowering the tension in the portal system by ligation of the splenic artery, the hepatic artery, and splenic and hepatic arteries proved unsatisfactory in controlling the bleeding and at the same time it carried a high operative risk. The method of compressing the varices by balloon tamponade, first reported by Westphal in 1930 as quoted by Linton and Warren [2] and by Rowntree [3] in 1947 proved to be more successful. Thus, Sengstaken and Blakemore [4] reported in 1950 on 30 patients with an acute hematemesis successfully treated with a nasogastric tube bearing a reinforced balloon. The balloon tamponade, Linton and Warren point out, is also useful in differentiating the source of bleeding, since, if the cardioesophageal tamponade controls the bleeding, then the source of it is esophageal varices and not a peptic ulcer of the stomach or duodenum. The removal of the tube, however, will not infrequently give rise to further bleeding. Linton and Warren, therefore, regarded this method as a temporary means to be followed by transesophageal suture of the varices. Immediate or early suturing of the ruptured varix permits adequate time in which to prepare the patient for the major surgical intervention of constructing some type of portacaval shunt.

Crile [5] considered suturing the esophageal veins as a definitive treatment of bleeding varices. He reported in 1950 on seven patients with severe bleeding from esophageal varices successfully treated by the operation of transesophageal ligation of the varices. He believed that this treatment was adequate in controlling bleeding in the extrahepatic blocks of the portal or the splenic veins. Most workers in this field feel that the definitive treatment of bleeding esophageal varices should be one capable of permanently lowering the tension in the portal system. This could be accomplished by anastomosis between the portal vein and the inferior vena cava or by an end-to-side anastomosis of the splenic vein to the renal vein. Under these circumstances, a large volume of blood will pass from the relatively high-pressure portal system into the low-pressure caval system via the shunt. Linton [6] reported on 77 patients who survived the formation of a portacaval shunt; 8 of these patients are now dead, and the remaining 69 (97%) are alive and in good health. Blakemore [7] reported an operative mortality of 17.8% for a series of 140 cases of shunt operation.

Cooley and DeBakey [8] proposed a rather radical operation consisting of an extensive subtotal resection of the esophagus as a definitive treatment for bleeding esophageal varices. The operation was carried out on three patients, two of whom have survived and are doing well.

Whatever surgery is contemplated, the surgeon must bear in mind the risk presented by the functional status of the liver and the deleterious effect on the liver of the long-standing portal hypertension. The improvement in the operative results in the last few years is due to achievements in the medical treatment of cirrhosis of the liver and the knowledge that a cirrhotic liver fortified with proteins, carbohydrates, and vitamins, if protected against anoxia, is far more resistant to decompensation following surgery than a liver not so supported. The availability of the whole blood plasma and human albumin for the correction of anemia, restoration of blood volume, restitution of depleted proteins, achievement of potential control of infection, and control of blood clotting are important factors favoring success with venous shunt procedures.

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ORGANIZATION SECTION

INVITATION TO NASSAU

Members of the American Medical Association have been invited to meet with the Bahamas Medical Association at the Jungle Club in Nassau on Wednesday, Dec. 7, following the A. M. A. Clinical Meeting in Boston. An official tour to Nassau has been arranged for

Paradise Beach on Hog Island across Nassau Harbor.

members of the American Medical Association for the week of Dec. 3-10, permitting physicians to accept the Bahamian invitation. Arrangements for the tour have been made cooperatively by United Air Lines, British Overseas Airways Corporation, Nassau Development Board, and International Travel Service, Inc. (Chicago). Tour folders are available upon request by writing to A. M. A. Nassau Tour Headquarters, 35 E. Monroe St., Chicago 3. The itinerary for the official tour to Nassau is as follows:

Friday, Dec. 2. Bon voyage buffet luncheon in the Bay State Room of Boston's Hotel Statler, followed by an afternoon flight to New York. Members of the tour will stay at the Waldorf-Astoria Hotel.

Saturday, Dec. 3. Departure at noon on a British Overseas Airways Stratocruiser, the Bahamian, to arrive in Nassau at 5 p. m. Tour members will stay at the Fort Montagu Beach Hotel.

Sunday, Dec. 4. This day is free of planned activities.

Monday, Dec. 5. In the morning there will be driving in private cars around the island.

Tuesday, Dec. 6. Tour members will board a motor launch for Hog Island, where the bath house and facilities of Paradise Beach will be at their disposal.

Wednesday, Dec. 7. Physicians will have luncheon at the Jungle Club and spend the afternoon with members of the Bahamas Medical Association. Ladies can enjoy the hotel's buffet luncheon, which will be followed by a fashion show displaying Egyptian cottons, English linens, and native straw accessories. The new Montagu Roof Garden will be the setting in the evening for a cocktail party with entertainment. Dinner will be specially arranged around native dishes such as cocoanut-fried chicken, Bahamian conch chowder, and stuffed lobster Nassauvian.

Thursday, Dec. 8. This will be a day of leisure, as will be Friday, Dec. 9.

Saturday, Dec. 10. Alternate departures for Miami via BOAC's new Viscounts. Departure at 10:15 a. m., with arrival at Miami at 11:15 a. m., or a few hours later, with departure at 6:30 p. m. and arrival in Miami at 7:30 p. m.

TRAVELERS TO WORLD MEDICAL ASSOCIATION MEETING

The picture below shows Dr. and Mrs. Dwight H. Murray and Dr. and Mrs. F. J. L. Blasingame prior to their departure for Europe via Scandinavian Airlines. Dr. Murray is the newly elected President of the Amer-

Left to right: Mrs. Dwight H. Murray, Dr. Murray, Mrs. F. J. L. Blasingame, and Dr. Blasingame.

ican Medical Association. Dr. Blasingame is the Vice-Chairman of the Board of Trustees of the A. M. A. They were en route to the World Medical Association meeting in Vienna, Austria, Sept. 20-26.

PUBLIC RELATIONS

Those Difficult Patients

There is a daily parade of people through almost every physician's office. Some of these individuals by their actions and attitudes slow down or bring to a complete halt this orderly procession. These are the patients doctors label as "difficult"—the shoppers, the talkers, the belligerents, and occasionally, those who are dissatisfied. These individuals complicate the task of running an efficient medical office and present definite public relations problems as well. Some are touchy and easily annoyed; others are inclined to become dissatisfied with the doctor or their medical care quickly. It has been found by medical societies that many of the complaints about medicine and the medical profession today are being voiced by such problem patients.

Consequently, even though such patients are trying to the physician, they must be dealt with thoughtfully and with special consideration. What makes certain patients "difficult?" Almost all of them reflect anxiety about their conditions. Some are distrustful of the doctor and suspicious of any medical procedure. Others are unable to cope with trying situations in life and so they take refuge behind physical symptoms. Many are reacting in a negative fashion to their illness and to the position of authority of the physician they have been forced to seek.

Dr. Howard P. Rome of Rochester, Minn., says: "Obviously, the static approach to clinical medicine which treats all patients as though they were simply the noncontributing carriers of diseases or injuries will yield a high percentage of difficult patients. Everything depends upon how the physician responds to the patient's recital of worries, whether with pointed inquiries, a shrugging dismissal of a symptom, or an enigmatic blandness that leaves the patient in an even worse quandary." Dr. Rome believes every patient requires a different method of approach according to the individual's psychology. Certain techniques are involved in these varying approaches. Here are some suggestions from practicing physicians for dealing with difficult patients:

Shoppers.—Every physician—especially a man just setting up practice—is confronted from time to time with "shoppers." These patients move from doctor to doctor, searching for the words they want to hear. Sometimes these individuals are seeking a contradictory diagnosis, sometimes the lowest-priced medical care; sometimes they are not sick at all but are searching for a doctor who will say there is a physical basis for their mental ailments. Should a doctor criticize a diagnosis that another physician made previously, such patients are inclined to seek compensation for the earlier "mistake" or to complain loudly to the neighbors and friends, thus undermining public confidence in physicians. Shoppers should be firmly urged to return to their own doctors, unless they have actually terminated the earlier doctor-patient relationship. Physicians recommend in such cases complete histories be taken, and they warn against talking disparagingly against other physicians.

Talkers.—"Gabby" individuals run on forever if allowed to, taking up more than their share of the doctor's time and sabotaging the appointment schedule. Sometimes, in an early conversation with such persons, the doctor's receptionist can spot a "talker." In some offices, talkers' cards or case histories are marked with a symbol that alerts the physician. Other doctors have their assistants pointedly remind them when bringing in a talker that the next patient will arrive promptly on schedule. The physician must phrase his questions carefully when interviewing such patients, since the more general his questions the longer the answers will be. One doctor says that a firm interruption now and then to get the conversation back on the track can be used without the patient taking offense (talkers are used to being interrupted by others). Some doctors use a concealed buzzer to signal their assistant when it seems impossible to conclude a visit with a talker in a reasonable length of time. The assistant then enters to say: "Doctor, I'm afraid you've run overtime. Your next patient has arrived." Another effective way to cut short lengthy, time-consuming conversations with such patients is to suggest they return for another appointment to discuss their condition. Few patients want to pay for another visit just to talk.

Belligerents.—Some patients actually seem to delight in disobeying the doctor's instructions. No matter what the psychological reasons for their rebellion, the physician should try to convince such patients that his orders have merit and are to the patient's best interest. He may have to state firmly: "I will no longer serve as your physician if you don't follow my orders. I won't be responsible for what happens if you do not cooperate." Often, the doctor should put such a statement in the form of a letter to the patient to protect himself.

Dissatisfied Patients.—The physician whose dissatisfied patient brings the grievance directly to him for discussion is fortunate. Generally, such persons complain loudly to friends and neighbors about their grievance, but the doctor hears about it only indirectly, if at all. When a patient does complain, the physician must listen patiently, even if the complaint seems ridiculous or unjustified. What are the reasons for the complaint? Is misunderstanding the cause of the trouble? Or is the complaint justified? In many instances the doctor can settle the complaint to the patient's satisfaction after a few minutes' discussion. When the patient cannot be satisfied, the doctor should suggest the patient put his complaint in writing and submit it to the local medical society's mediation committee for hearing. Such committees convince patients that physicians sincerely are trying to settle grievances justly.

In most cases, problem patients can be turned into amiable, cooperative patients. Each difficult patient presents a challenge to a physician's dexterity in human relations.

PRoblem Corner

No physician enjoys crawling out of bed during the night to answer an emergency call. He knows from actual experience that the majority of such calls are false alarms. Yet—one out of 10 such calls may be a real

emergency. Since no doctor has a crystal ball to help him differentiate over the telephone the real from the fancied emergencies, he takes a great risk in refusing any such call. The one emergency case that goes untended creates a tremendous public relations problem for the entire profession. Here's what happened in one midwestern city recently:

At 5:45 a. m. one Sunday recently a frantic father told a telephone operator his 5-year-old daughter was in convulsions and that he could not remember the telephone number or spelling of his doctor's name. The operator quickly traced the doctor and put through a call to him. His wife answered and berated the operator for calling the doctor so early. When the father was put on the line and explained that the inhalator squad had already been called to his home to revive the child, the wife finally allowed him to speak to the doctor. The physician agreed to accept the call. The doctor's wife then came back on the line and told the operator not to ring them for any more emergency calls, and the doctor reiterated the request in somewhat abusive terms.

Because of the telephone operator's persistence, tragedy was averted. The doctor admitted to the father he was glad the parents insisted on his coming at once, as the little girl was more seriously ill than he had imagined. The grateful mother later wrote a letter of appreciation to the telephone company praising the efforts of the operator in securing a doctor. The telephone company got good public relations out of the incident, but how much ill will was engendered by the attitude of the physician and his wife in this instance? The telephone company official who reported the incident stated in a letter that there were "too many such occurrences."

The medical profession has accepted the responsibility for providing emergency medical care. What can the profession do to assure that individual physicians do not shirk this responsibility? The physician's wife must understand the nature of this responsibility too, since she often can do irreparable harm to the public relations of the individual doctor. Public relations is more than just the responsibility of the physician—it is the responsibility of his wife, his family, and all those associated with him in his practice.

Encouraging Traffic Safety

Few persons are better qualified to point out to the public the terrible consequences of traffic accidents than physicians. By promoting traffic safety, physicians in a number of communities are rendering a real community service and incidentally netting better public relations. A Warrenton, Va., physician reports one effective traffic safety promotion accomplished in his town. "In our town when the highway department refused a stop light for a dangerous intersection, we sent a delegation of two doctors (one representing the local hospital) and an undertaker to explain how 'profitable' that intersection had been. The hospital and undertakers' bills were quite impressive. We got *two* stop lights—and at once."

In a similar move, physicians of the Schuyler County (N. Y.) Medical Society called attention of county officials to a dangerous curve near an intersection. The letter pointed out that one person had been killed and several injured at the spot. Action to abolish the curve was urged. The community newspaper used the society's letter as the basis for an editorial and further emphasized the need for action. Medical public relations need not be limited to medical affairs. The opinion of the medical society on any community situation often carries great weight. Voicing that opinion constructively often results in improved public relations for the profession.

MEDICINE AND THE LAW

MEDICO-LEGAL ASPECTS OF TISSUE HOMOTRANSPLANTATION

Allan D. Vestal, LL.B.
Rodman E. Taber, M.D.
and
W. J. Shoemaker, B.S., Iowa City

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Commencing with the transfusion of blood shortly before World War I, the concept of transferring tissue from one individual to another as a life-prolonging or life-saving measure has acquired general acceptance by physicians and the public. Blood transfusion has progressed from initially hazardous, experimental procedure to one of common and every day usage in both large and small hospitals. The principles and techniques of transfusion are sufficiently well understood by the medical profession and lay public alike that no written authorization from the recipient is required for a transfusion.

During the past ten years the field of tissue transplantation has received increasing attention. Classical experimental work was carried out at the turn of this century [1] in connection with arterial transplantation. It was clearly shown to be a feasible procedure at that time but due to lack of advances in supportive facilities it was not carried over to human application. Following World War II, much of the original experimental work was repeated [2] and in 1948 [3] the first successful series of arterial homotransplantations was carried out in man. The rapid development of supportive facilities at this time in the fields of anesthesiology, applied physiology, and the antibiotics made these procedures safe to perform in the clinical field. Further advances in methods of tissue storage [4] have extended the usefulness of vessel transplantation so that at the present time this procedure is being carried out in many of the larger hospitals in this and foreign countries. The surgical treatment of obstruction or abnormal dilation of major arteries due to arteriosclerosis or "hardening of the arteries" is accounting for its most frequent use. Arterial transplantation makes it possible for the surgeon to excise the diseased vessel and substitute a healthy one in its place. These conditions have become of increasing importance due to a steady rise in the proportion of aged people within our population. Arterial homotrans-

Because of space limitations, the bibliographic references have been omitted from THE JOURNAL and can be found in the original article.

plants were successfully utilized in treating war injuries during the Korean conflict.

The transplantation of skin from a donor individual to a severely burned patient, or skin homografting, accounts for a modest number but frequently lifesaving type of skin grafting procedure. In this surgical procedure, the donor skin survives for a few weeks rather than permanently, but during this period the patient may be carried through a critical phase of his illness. In the very severely burned patient, the remaining unburned areas may not be sufficient to permit the use of his own skin for grafts. In this situation, the skin homotransplant constitutes a lifesaving application. The majority of skin transplants are carried out from one part of the individual to another part and therefore do not involve a donor and recipient. It is possible and has recently proven successful [5] to use skin removed from a deceased person for the former type of skin transplant. This tissue source would mean that parents and relatives of patients requiring this type of procedure would be spared the pain and disability of serving as donors. The need for transplanting skin from one individual to another arises most frequently in the case of severely burned children. Another need, and one which it is hoped will remain theoretical for some time, is in dealing with the extensive burns incident to an atom bomb conflict. Both civilian and military application would be involved.

The transplantation to a patient of bone tissue removed from another individual is a practical surgical procedure. In this application of tissue transplantation, the donor tissue is frequently obtained from patients who require chest surgery. It is commonly necessary to remove a portion of a rib from these patients in order to gain access to the interior of the chest. This type of donor tissue is therefore usually available without subjecting an individual to a separate surgical procedure for the purpose of obtaining the transplant material. Occasionally, bone homotransplants removed from the recently deceased have been used.

Based on sound experimental work,[6] the transplantation of portions of the cornea of the eye has become a frequently practiced operation in hospital centers of the United States and Great Britain. Many children and adults have had their sight restored through the use of this form of tissue transplantation. Many more are awaiting the procurement of sufficient donor tissue so that they may receive the benefits of this type of surgery.

The surgical procedures of vessel, skin, bone and cornea transplantation have each weathered a long period of experimental development. Considerable fundamental information remains to be learned about these and other types of tissue transplantation. The acquisition of this knowledge will in all likelihood expand the scope of their application.

The full utilization of techniques, those known now and those that may be discovered in the area of tissue transplantation, will certainly require greater amounts of donor tissue than have been available in the past. In the nature of things, medical personnel working in this field look generally to those who have recently died as the most frequent source. At the present time there is no routinized, common procedure by which such tissue is obtained, rather various individuals are using diverse methods. Some individuals working in this field have obtained written consent of the nearest of kin as well as routine postmortem authorization before removing tissue for transplantation purposes at the time of necropsy. Others have required only the necropsy authorization.[7]

In the early days of experimentation, such haphazard procedures were sufficient and provided an adequate supply of tissue with little difficulty. With the rapid increase in application of these operative techniques, the demand has in many localities far outdistanced the available supply. As a result, physicians performing these operative procedures have become interested in maximizing the source of such tissue while at the same time minimizing the possibility of legal difficulties.

LEGAL BACKGROUND

Originally in England the ecclesiastical courts exercised jurisdiction over matters concerning dead bodies.[8] Recognizing such jurisdiction, Lord Coke said such matters were not under the cognizance of common law courts.[9] From this there arose the concept that there were no property rights in a dead body.[10] It was not until the latter part of the 17th century that the common law began to take jurisdiction of religious offenses and by this time the concept was accepted that there were no property rights in dead bodies.[11] Since the time of Lord Coke the cases have held uniformly that there is no right of ownership in a commercial sense in a dead body.[12] It has been pointed out that the incidents of ownership, such as the rights to dispose of the property, to abandon it, to exclusive possession, to destroy, alter or improve it are not present.[13]

Even the courts which flatly state there is no property in a dead body do agree that there is a right of possession of the body for purposes of burial.[14] Other courts take the view that the right to possession and disposal is in the nature of a "sacred trust."[15] Regardless of whether this right is a quasi-property interest in the body, or a property interest, or something else, the courts have held that this right belongs to the surviving spouse, children, and then next of kin in that order.[16] In the growing law in this area the common law courts developed the idea that any exhibition of a dead body, even for scientific purposes, was a common law offense.[17] It was held in *Regina* v. *Francis Scott* [18] that a dead body could not be detained as security for the payment of a debt.

The law with respect to human bodies is ever changing. As Mr. P. E. Jackson points out in the introduction to his treatise on "The Law of Cadavers," ". . . when we go to the common law for bases for rules of law respecting dead bodies and their disposition, we find little or nothing of value. . . . When we look to our own substantive law for precedents, we find that our courts . . . in the determination of these questions . . . were not concerned with property rights, but were dealing with sentimental matters affecting domestic relations." [19] As the law in the various jurisdictions today indicates, the rules concerning human bodies are not so much concerned with property rights as they are with " . . . considerations

of love, reverence, public health, comfort, and convenience. . . . In the formulation of these rules, it became possible to give heed to modern conceptions of human value and rights and to deny the force of mechanically created postulates of the common law."[20]

Rules respecting rights and remedies in dead bodies usually spring from respect for natural feelings and emotions.[21] One court stated that all questions which arise out of and which regulate custody and disposal of dead bodies depend not upon the principles which regulate possession and ownership of property but upon considerations arising out of domestic relations and ties of blood.[22]

The general policy concerning dead bodies can be articulated as follows: 1. Rights in a dead body exist ordinarily only for purposes of disposal and a dead body is not property in the ordinary commercial sense.[23] 2. The person who has the privilege of exercising the right [24] of disposal or the person who is charged with the duty [25] of disposal is entitled to the possession of the body for that purpose.[26] 3. The person who has the right of possession is entitled to receive the cadaver in the same condition as it was in when death occurred.[27]

There are numerous exceptions to the elicited general rules and a large number of statutes with respect to dead bodies deal specifically with these exceptions which fall into several well-defined groups.

First the sanctity or immunity of a cadaver must give way before the general interest of the public when an autopsy is required for the protection of health or the discovery of crime.[28] In such a case, the welfare of society demands that the state or its authorized representative be permitted to conduct an examination by dissection without reference to the wishes of the relatives of the decedent. No action can be maintained against a coroner or against the examining physicians for the ordering or performing of an autopsy or postmortem examination where the circumstances are such as to render the examination reasonably necessary and proper in the exercise of the duties of such coroner and medical examiners if the work is done in a decent manner and without wantonly disfiguring the body.[29] The question of whether the autopsy services of the coroner are necessary in each case of death involving suspicious circumstances is one largely within the sound discretion of the coroner.[30] The right of relatives to the possession of the body for purposes of burial is subordinate to such a right.[31] It has even been held that where a physician, unable to determine the cause of death without an autopsy, proceeds, without the consent of the next of kin, to make an examination in a decent and proper manner for the purpose of making a death certificate, the courts impose no liability on him.[32]

The sanctity of the cadaver has given way to the public interest in the correctness of an adjudication between parties to civil litigation. This interest in the outcome of actions between parties has resulted in the legal approval of a provision in insurance contracts which authorizes an autopsy to ascertain the cause of death.[33] Even without such a contractual provision, a court may order an autopsy to establish certain facts in civil litigation.[34]

The public interest in the prosecution of crime and the vindication of legal rights has led also to the passage of legislation which provides for the disinterment of dead bodies.[35] Although the courts may be reluctant to exercise discretion granted under such legislation,[36] the basic policy of such laws seems quite clear. In such legislation, the justification may not be in terms of criminal responsibility, but rather civil liability.[37]

The interest of the public in the promotion of medical education and scientific progress has also led to some relaxation in the usual immunity attached to dead bodies. Because of the very nature of the science of medicine, a number of cadavers are needed for research and education. To meet this need, a number of states have passed legislation. A typical statute provides that the ". . . director or person in charge of any hospital, institution, morgue or other place for bodies of deceased persons not interred or otherwise finally disposed of, and every funeral director, undertaker or other person having in his lawful possession, any body of a deceased person for keeping or burial, shall deliver every body of a deceased person in his possession . . . not placed therein by any person, agency or organization for keeping, burial or other lawful disposition, to: (1) any medical college, school or institute registered by the regents . . . (2) any university within the state authorized by law to confer degrees of doctor of medicine or doctor of surgery; . . ." [38] Furthermore, permission is given to use the body for the purposes of medical, anatomical and surgical science and study.[39]

Thus, public policy has seen the need of medical-scientific uses of dead bodies and has provided a legal means for obtaining dead bodies to help save the lives of others.

The same interest in medicine and scientific progress behind the unclaimed cadaver laws would seem to result in the approval legally of the concept that an individual can give consent to the performance of an autopsy in the interest of science or even that an individual can give his body for scientific investigation.[40]

These exceptions to the general rules, developed because of the natural hesitancy to cut or dissect a human body, suggest the direction in which public feeling has developed toward dead bodies. Whereas there is much feeling of reverence and sacredness concerning cadavers, the knowledge that science and medicine need to utilize dead bodies to save the lives of other humans and to promote socially acceptable ends has resulted in great breaks in the protective wall surrounding the dead body. When society's needs have required it, the sanctity and immunity of dead bodies have given way.[41]

PRESENT STATE OF THE LAW

The use of tissues for transplantation, of course, has repercussions in a vast number of fields.[42] In law there are at least two areas that are concerned. First, the persons involved may find that they are subject to criminal prosecution for their part in the operation;[43] additionally, they may find that they are subject to a civil action for damages because of the act of transplantation. In order to limit the scope of the coverage, this article is limited

to the problem of civil liability of a doctor [44] for the taking [45] of tissue from a body. Other facets of the problem will not be discussed herein.[46]

The medical profession is faced with two quite dissimilar legal problems in obtaining tissue for therapeutic use. One is that of getting tissue, for example, corneal matter, from a living donor. The other is getting tissue from a dead body. Although the medical profession may consider the problems as similar, the legal considerations are quite different.

It seems quite probable that a living individual, even in the absence of statutory authority, can give a part of his body.[47] That there is very little authority on the matter is readily understandable since there is a serious question whether anyone except the willing donor has any interest at all in the matter. For example, when a person donates a pint of blood, it seems apparent that another cannot urge that he has been injured. Some jurisdictions, it is true, have passed special legislation giving to an individual the right to determine what shall be done with a part of his body which has been separated from the body.[48] However, this sort of legislation would seem to be merely a restatement of the existing law on the matter.

Living donors would seem to be a rather limited source for tissue to be used for therapeutic purposes. Some elements of the body are readily replaced, such as blood, so that living donors are an excellent source. But this is not true of most of the tissue to be used as homografts. Occasionally a living donor is separated from part of his body through accident or required surgery, and then there is a possibility that such tissue from a living source could be used. In addition some donated tissue can be obtained from living individuals. For example, corneal tissue given by a parent for a blind child. But it seems apparent that if any great amount of tissue is to become available for homografts it must come from the bodies of deceased individuals.

Turning then to cadavers as a possible source, one concludes that there are several legal approaches to the matter. First, as mentioned above, a number of jurisdictions have passed legislation designed to furnish cadavers to medical schools and other such institutions.[49] One statute, which is more or less typical, provides: The body of every person dying in a public asylum, hospital, county home, penitentiary, or reformatory in this state, and which is suitable for scientific purposes, shall be delivered to the medical college of the state university, or some osteopathic or chiropractic college or school located in this state, which has been approved under the law regulating the practice of osteopathy or chiropractic; but no such body shall be delivered to any such college or school if the deceased person expressed a desire during his last illness that his body should be buried or cremated, nor if such is the desire of his relatives or friends. Such bodies shall be equitably distributed among said colleges and schools in accordance with such rules as may be adopted by the state department of health, but the number so distributed shall be in proportion to the number of students matriculated at each college or school. The expense of transporting said bodies to such college or school shall be paid by the college or school receiving the same.[50]

On the face, such statute would seem to offer a possible source for tissue for therapeutic purposes. In fact, this is not true because of at least two reasons. First, in many states where there are no large cities, such statutes do not have any real application because there are very few unclaimed bodies, and the medical schools are forced to get cadavers for educational purposes through commercial channels. Moreover, such cadavers are so treated as to be entirely unsuited for homografts. Secondly, in this type of legislation there is usually a provision such as the following: When any dead body which has been delivered under this chapter for scientific purposes is subsequently claimed by any relative or friend, it shall be at once surrendered to such relative or friend for burial without public expense; and all bodies received under this chapter shall be held for a period of sixty days before being used.[51] Since the tissue, under present medical practice, must be obtained and processed within a very short period of time, such a statutory provision above means that tissue from such cadavers is not available for therapeutic use.[52] Also, although it would not seem to pose a real problem, such statutes were not drafted with therapeutic use in mind, and a strict interpretation of the statute might seem to exclude the use of tissue for transplanting.[53] However, the better view would seem to be that, if such tissue could be used, that its use for therapeutic purposes would fall within the scope of such legislation.[54]

Another possible legal approach to the question of getting tissue from deceased individuals is that of getting permission to take such tissue. This could be either ante-mortem permission from the prospective donor or post-mortem permission from those who have the right of possession of the body.

First, ante-mortem permission from the prospective donor. The legal background in this area offers no definitive answer to the problem of whether ante-mortem donation of tissue for therapeutic use is legally effective. However, the growth and development in the area do suggest the probable present state of the law. Dicta in a number of early cases would suggest that such ante-mortem consent would be good.[55] Many of these cases arose in connection with the right of an individual to control the place of interment of his body. Almost without exception, courts have held that an individual has the right to control the place of interment.[56] The limited authority to the contrary seems to be readily understandable when the facts are considered,[57] and the precedent value of the authority may be questionable.[58] The same control of an individual over the disposition of his body was recognized in the matter of cremation. An individual can direct that his body be cremated, and such direction will be enforced.[59] A third group of cases in the area involved the right of an individual to contract with an insurance company for the performance of an autopsy upon death, at the discretion of the company.[60] Although such contracts have been interpreted restrictively,[61] the basic right of an individual to contract concerning his body after death has consistently been upheld. Under an insurance policy which provides that the company shall have the right to have an autopsy performed, a court may exercise equitable jurisdiction, when de-

mand for an autopsy is refused, to entertain a bill for discovery and to appoint a receiver to assume responsibility for the organs of the deceased pending examination to determine the cause of death. Under the contract the company has a right to conduct an examination of the organs superior to any right of any member of the family of the deceased.[62] In addition, a number of states have by statute specifically provided that an individual can provide that his body be disposed of as he designates, for example, for scientific purposes.[63] Although there is room for argument, it seems reasonable to assert that such legislation merely restates the existing law.[64] It may be valuable for clarification and to eliminate the possibility of doubt, but it seems probable that such legislation does not add to the law.[65]

It would seem to be fair to conclude that a person at the present time in the United States probably has the right to control the disposition of his body after death as long as no public policy is contravened,[66] and it would seem to follow that an individual in his lifetime can give permission for the taking of tissue from his body after death. In some areas this may be a feasible long-range approach to the problem. Through public education, it may be possible to sell the public generally on the idea that the giving of such ante-mortem permission is desirable. However, at the present time, this is not a very productive source of tissue. The question of donation is not a pressing one until the individual is in a hospital, and then there is an understandable reluctance to raise the question.[67] A request for permission to use tissue after death would be a most shocking experience to a patient. And in many cases there might be a very serious question about the legal capacity of the patient to give such permission.

Secondly, there is a possibility that post-mortem permission might be obtained from those entitled to the body. Again we find very little authority but it seems that were such permission obtained, any serious legal difficulties would be avoided. If the relative or relatives with the right to possess the body [68] should give their consent, it would seem that no legal difficulties could arise since no other person would have the legal standing to raise the question,[69] and the person with the right legally to assert a cause of action apparently would be barred or estopped by the authorization. It should be noted that there is generally no statutory authorization for such permission.[70] The closest statutes are those that authorize an "autopsy of post-mortem examination" when post-mortem permission is given by one entitled to the body.[71] It is possible that such a statute might be liberally construed to include the removal of tissue for therapeutic purposes. But it does seem that statutory authority for removal of tissue is not required to avoid civil liability if permission of those legally interested is obtained.

The realistic approach to the matter at the present time must be based on one very simple fact. The one great, readily available source of tissue at the present time is the steady flow of bodies on which autopsies are performed. There are many autopsies performed under the various statutory authorizations. For example, Iowa provides for the performance of autopsies when desired by a coroner in examining into deaths ". . . of such persons only as are supposed to have died by unlawful means, . . ." [72] and for autopsies in certain other special situations.[73] In addition, there is a statutory provision that an autopsy or post-mortem examination may be performed upon the body of a deceased person by a physician or surgeon whenever the written consent thereto has been obtained in any of the following manners: 1. By written authorization signed by the deceased during the lifetime. 2. By written consent of any party whom the deceased during his lifetime designated by written instrument to take charge of his body for burial. 3. By consent of decedent's surviving spouse. 4. If the surviving spouse is incompetent, unavailable, or does not claim the body for burial, or if there be no surviving spouse, by consent of any adult child, parent, brother or sister of the decedent. The consent of any one of such persons shall be sufficient provided that such autopsy shall not be performed under a consent given by one of such persons if, before such autopsy is performed, any of said others shall object in writing to the physician or surgeon by whom the autopsy is to be performed. 5. If none of the above persons is available to claim the body, then by consent of any other relative or friend who assumes custody of the body for burial.[74] Such ante-mortem [75] consent or post-mortem [76] consent for an autopsy probably is effective even in the absence of statute.[77]

Under these and similar provisions,[78] there are a great number of bodies that are opened and tissue examined. Various parts are removed for scientific reasons, some parts are not replaced, the body is returned essentially to its original external appearance and turned over to the proper individual for burial. It seems to be a practice—of some widespread acceptance—to remove and keep, for scientific purposes, tissue from bodies being subjected to autopsy. As far as the authors have been able to ascertain, no litigation has arisen over the taking of tissue for therapeutic purposes. In *Palmquist* v. *Standard Accident Insurance Company*,[79] the deceased husband of the plaintiff had an insurance policy with the defendant. The policy provided that the insurer had the right to make an autopsy in case of death. The insurance company, under the authority contained in the policy and with the permission of the plaintiff performed an autopsy. The physicians representing the insurer removed some organs for pathological examination. The organs were retained for "some months." A demand was made for their return, but the company's doctors retained possession, and continued in possession until the time of trial. No reason was given for the continued possession of the organs, and the jury returned a verdict in favor of the plaintiff for $1,500.

In *Palenzke* v. *Bruning* [80] an autopsy was performed under the authority of a coroner. The court stated: Unless sufficient reason existed for an autopsy [the plaintiff] was entitled to the body unmutilated. If such reason did exist, he was, nevertheless, entitled to the whole body, even though necessarily disfigured, unless it proved necessary to remove and preserve some particular organ for

further examination, as to whether a crime had been committed, or for evidence. But no one—coroner, nor doctor, nor undertaker—had the right to remove parts of the body and, without the parents' consent, throw them into a privy vault. Such conduct violates every instinct of propriety, and could not fail to outrage the feelings of the kindred of the deceased. For such violation of the [plaintiff's] rights an action for damages can, we think, be maintained.[81] The court held the demurrer should have been overruled and that the plaintiff stated a cause of action.

In *Hassard* v. *Lehane* [82] the court was faced with a case involving an illegal dissecting of a body by a coroner's physician. The doctor, without authority, performed an autopsy ". . . removed the heart and spleen, and cut them into many pieces, and had them preserved in alcohol in a jar in his office . . . the only explanation offered by the defendant was that the decedent had a greatly enlarged spleen, and was an interesting case." [83] The court held that nonsuit at the end of plantiff's case should not have been granted. The court noted that ". . . even if the autopsy had been authorized by the coroner, that did not, on the facts here presented, justify the removal and detention of any of the organs of the decedent." [84]

These cases suggest that an individual may be forced to answer in a law suit which alleges that, after an autopsy, parts have not been returned when no reason is given for the failure to return such tissue or when the reason given is considered to be insufficient. The cases do not definitely decide the legality of the removal of tissue for therapeutic purposes during an autopsy. These cases do suggest that when an autopsy is performed the purpose to be served may be of great legal importance. Where the investigation of crime is involved, the autopsy may take place under certain limitations;[85] when the matter at hand is the cause of death and the application of an insurance policy certain other restrictions may operate. When the autopsy is being performed under a general grant of consent in the interest of science, other conditions may be operative. In other words, the autopsy must be conducted within the terms of the authority given.[86] An unnecessary violation will give rise to liability. However, a reasonable construction must be given to such authority.

When an autopsy is performed, authorized either by statutes or by consent given by the person entitled to the body, there is a logical implication that there is given to the doctors ". . . permission . . . to conduct such examination in the approved and usual manner practiced by their profession."[87] As one authority has stated: It has always been customary to remove from a body during a post-mortem organs and specimens for the purposes of pathological and histological examination and preservation and demonstration specimens. There is no statutory bar to such actions, and it does not fall within the definition of the desecration of a body, if it is done bona fide and decently, in accordance with universally accepted medical practice. If consent is given to the post-mortem, it must be taken to include consent for this purpose, which is considered to be an integral part of post-mortem procedure.[88]

The bodies on which autopsies are performed then would seem to be an excellent source of tissue for therapeutic purposes. Persons performing such autopsies might well remove tissue for storage in "banks," since ". . . there . . . does not seem to be any legal barrier to this being done if the operator chooses to do so voluntarily, provided that there is no visible mutilation of the body other than that inseparable from the usual requirement of post-mortem techniques." [89]

A doctor engaged in homotransplantation can probably obtain tissue in sufficient amounts using post-mortem authorization of the next of kin and still obtain a reasonable degree of protection from civil liability. This would involve getting from the next of kin [90] a statement of authorization or request for dissection.[91] Such writing could be so drafted as to include, without any question, the right to take tissue for therapeutic use.[92] Legally this would then involve the taking of tissue by postmortem consent, as well as the performing of autopsy discussed immediately above. The obtaining of tissue in this manner, buttressed then by both specific postmortem consent and the precedent to be found in the accepted practice of pathologists, would seem to be proper beyond any reasonable doubt, and would not subject the participating doctor to legal liability.

PROGNOSIS

Unless some substitute is found for human tissue now being used in homotransplantations there is every reason to believe that there will be an ever growing demand for such tissue. The law as it now stands should not impede the progressively greater use of homografts. In fact, the reasonable utilization of the available legal devices should produce sufficient tissue. Immediately, through the greater use of consent by the surviving kin, an expanded supply can be obtained. Then through education the device of the ante mortem consent of the donor himself can be used to increase the supply of tissue for therapeutic purposes. The legal devices are available; the next step is the cooperation between the medical and legal profession to utilize these devices.

Since this article was written, the Fifty-sixth General Assembly of the state of Iowa has passed and the governor has signed into law a comprehensive act, House File 167 (as amended), dealing with cadavers and their use by the medical profession. One provision reads as follows: Every inhabitant of this state of the age of twenty-one years or more and of sound mind may, by his will or by a written instrument executed in the same manner as a deed, arrange for or prescribe for the disposition to be made, after death, of his body or any organ, member of part thereof, provided the same is for the purpose of scientific use as provided in this chapter, or for other advancement of medical science, or for the replacement or rehabilitation of diseased of worn out parts or organs of other humans. The person or persons having the right to a body for burial may likewise consent to such use of the body or parts thereof. And such disposition of his own body may be revoked by the testator or grantor at any time prior to his death by the execution of a written instrument in the same manner as the original grant. Such legislation is valuable in clarifying the legal rights and obligations involved.

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195

MEDICAL NEWS

CALIFORNIA

Symposium on Heart Disease.—The 26th annual Postgraduate Symposium on Heart Disease, Oct. 5-7, at the St. Francis Hotel, San Francisco, will have as guest speakers Drs. D. Evan Bedford, London, England; Franklin D. Johnston, Ann Arbor, Mich.; Elliot V. Newman, Nashville, Tenn.; Edith L. Potter, Chicago; and Myron Prinzmetal, Los Angeles. Cooperating with the San Francisco Heart Association in this program will be the county heart associations of Alameda, Monterey, San Mateo, and Santa Clara. Topics for discussion will be: Electrocardiography and Vectorcardiography; Congenital Heart Disease; Pathology and Diagnosis; Coronary Artery Disease; and Therapy. Dr. Bedford, the speaker at a dinner meeting Thursday evening, will present "New Lamps for Old in Cardiology."

Escape from Aircraft.—A symposium, "Escape from High Performance Aircraft," will be held in Los Angeles Oct. 7, under the auspices of the Aero-Medical Engineering Association. The all-day symposium and the dinner and evening round-table discussions will be presented at the Institute of Aeronautical Sciences Building, 7660 Beverly Blvd., under the cosponsorship of the Institute of Aeronautical Sciences, Los Angeles section, and the Institute of Transportation and Traffic Engineering of the University of California. Nationally known authorities in the field will discuss methods of escape, designing for protection, personal equipment for protection, and the physics, physiology, and psychology involved. Case histories of actual escapes under emergency conditions will be presented.

Medical Lecture Series.—The annual medical lecture series sponsored by University Extension and the University of California Medical School in Los Angeles will be presented on Mondays, 7:30-9:30 p. m., Oct. 3-Dec. 19, in the first floor lecture hall (room 13-105) of the medical center, with Dr. David H. Solomon as chairman. Lecturers will discuss Management of Peptic Ulcer, Chronic Liver Disease, Indications and Results of Common Cardiac Surgical Procedures, and the Current Status of Tuberculosis and Systemic Fungus Infections. Applications for admission to the series (fee, $50) should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Medical Extension, University Extension, University of California, Los Angeles 24 (BRadshaw 28911-extension 202).

ILLINOIS

Psychiatric Lectures.—The sixth annual North Shore Health Resort lectures on psychiatric problems will open Oct. 5 at 8 p. m. at the hospital (225 Sheridan Rd., Winnetka) with "Management of Psychiatric Emergencies" by Dr. Karl M. Bowman, professor of psychiatry, University of California Medical School, San Francisco. The Commission on Education of the American Academy of General Practice has approved these lectures for informal credit. The J. B. Lippincott Company of Philadelphia will publish the entire series as a book. All royalties that will accrue have been assigned to the American Psychiatric Association, of which Dr. Bowman is a past-president. All physicians are cordially invited to these lectures.

Chicago

Monthly Cardiac Conference.—The monthly clinicopathological cardiac conference of Cook County Hospital will be held Oct. 7 from 11 a. m. to 12 noon at an open meeting in the Children's Amphitheater, 700 S. Wood St. "Recent Advances in the Diagnosis of Congenital Malformations of the Heart" will be presented by the guest speaker, Dr. Alexander S. Nadas, the Children's Medical Center, Boston.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Annual Bevan Lecture.—Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota Medical School, Minneapolis, will deliver the 27th annual Arthur Dean Bevan Lecture of the Chicago Surgical Society at the Knickerbocker Hotel, 163 E. Walton St., at 8 p. m. Oct. 7. The subject of his address will be "Current Accomplishments in Cancer of the Alimentary Tract with Special Reference to the Stomach and Colon." The profession is cordially invited to attend the lecture.

KANSAS

Lecture on Hospital Explosion Hazards.—The Sedgwick County Medical Society will have as guest speaker Oct. 4 Dr. George J. Thomas, director, department of anesthesiology, St. Francis and Medical Center Hospitals, Pittsburgh, who will present a lecture and demonstration concerning "Fire and Explosions Hazards in Hospitals and Their Control." Dr. Thomas is chairman, section on anesthesiology, University of Pittsburgh School of Medicine. Since 1938 he has been active in research on the prevention of fires and explosions with flammable anesthetic agents and has worked in close cooperation with the explosives division of the Bureau of Mines in Pittsburgh. Members of component medical societies of the Kansas Medical Society and Veterans Administration and armed services personnel are invited to attend the meeting. Dinner reservations may be secured by calling MU. 3-7557 or writing Sedgwick County Medical Society, 1102 S. Hillside, Wichita 17.

MASSACHUSETTS

Ballard Memorial Fund.—To honor the late James F. Ballard, who had been affiliated with the Boston Medical Library for almost 63 years and had served as its director for 28 years, one of the fellows of the library has offered to start a James F. Ballard Memorial Fund with a contribution of $5,000, contingent on significant interest in the memorial fund by other friends of Mr. Ballard and the Boston Medical Library. The income from the fund will be used primarily to establish a pension plan for the personnel of the library. Friends wishing to contribute may send checks, made payable to the Boston Medical Library, 8 Fenway, Boston 15.

MINNESOTA

Dr. Sogge Honored.—June 26 was Dr. Sogge Day at Windom, with residents of the area and professional colleagues gathering to pay tribute to Dr. Ludwig L. Sogge for his 50 years of service in medicine. Keynote speaker on the program was Dr. Frederic J. Kottke, former resident of Windom and now head of the department of physiotherapy at the University of Minnesota, Minneapolis. The day's activities included a dinner for medical men of the area, followed by an afternoon program of speeches and entertainment in the high school auditorium.

MONTANA

Society News.—The Montana-Wyoming chapter of the American College of Physicians will hold a regional meeting in Billings Oct. 7-8, 1955. All physicians in Montana, Wyoming, and the adjoining states are invited to attend. Dr. Harold W. Gregg, Butte, college governor for Montana and Wyoming, will be toastmaster at a banquet at the Northern Hotel, Friday, when the guest speakers will be Dr. George F. Strong, Vancouver, B. C., Canada, president of the college, and Mr. Edward R. Loveland, Philadelphia, executive secretary.

NEW YORK

Emotionally Disturbed Children.—The Astor Home, Rhinebeck, a residential center for research and treatment for emotionally disturbed children, will hold its first annual Conference on Child Treatment Oct. 10. Participants will include Drs. Frank J. O'Brien, Brooklyn, N. Y.; Leo H. Bartemeier, Baltimore; Harvey J. Tompkins, Washington, D. C.; Ralph D. Rabinovitch, Ann Arbor, Mich.; and Earl A. Loomis Jr., Pittsburgh.

University News.—Frieda S. Robbins, Ph.D., Rochester, has retired as associate in pathology at the University of Rochester School of Medicine and Dentistry after 32 years' service.——Dr. Robert P. Whalen, medical administrator in the Albany County Welfare Department, has been appointed instructor in public health at the Albany Medical College of Union University, and Dr. Franklyn B. Amos has been promoted from assistant professor to associate professor of public health.——Dr. Brian MacMahon, lecturer in social medicine, University of Birmingham, England, has been appointed associate professor of environmental medicine and community health at the State University of New York College of Medicine at New York City, Brooklyn, where he served as visiting lecturer during 1953 and 1954. At that time he conducted an epidemiological investigation into the incidence of leukemia and related disorders in Brooklyn over the past decade.

New York City

Dr. Lyall Named Professor of Clinical Surgery.—Dr. David Lyall has been promoted from associate professor to professor of clinical surgery at Post-Graduate Medical School of New York University-Bellevue Medical Center. Dr. Lyall also succeeds Dr. Herbert Willy Meyer, who resigned July 1 as director of the center's University Hospital Tumor Service and of the fourth surgical division of Bellevue Hospital. Dr. Lyall joined the staff in 1941 as instructor in surgery, when the school was the former New York Post-Graduate Medical School and Hospital. In 1947 he became instructor in surgery at Cornell University and returned to the New York Post-Graduate Medical School in 1948 when the school and hospital became a part of New York University-Bellevue Medical Center.

Elder Craftsmen Shop.—The Welfare and Health Council of New York City announces that it will open a nonprofit Elder Craftsmen Shop this fall, where citizens, aged 60 and over, will display and sell wood carvings, ship models, jewelry, leathercraft, and other articles made with their own hands. Mr. J. Donald Kingsley, executive director of the council, states that "The annual Hobby Show for Older Persons, which the council has sponsored for the past nine years, has encouraged thousands of men and women to use old skills and develop new ones. The Elder Craftsmen Shop will provide an important step to help them sell their articles in fair competition with other merchandise, to supplement their pensions and low fixed allowances and thus achieve some degree of self-support." A campaign will be conducted to secure funds to underwrite the shop initially. Temporary headquarters will be at the council offices, 44 E. 23rd St. Contributing memberships available include annual member, $10; sustaining member, $25; donor, $50; benefactor, $100; and founder, $1,000.

PENNSYLVANIA

Surgical Society Presents Award.—The first annual award of the Pittsburgh Surgical Society was presented at the recent annual meeting to Dr. Charles William Mayo, professor of surgery, Mayo Foundation, Rochester, Minn. After receiving the award, a plaque, Dr. Mayo addressed the members of the society and their guests on "Carcinoma of the Colon and Rectum with Special Reference to Precursory Lesions."

Philadelphia

Meeting on Care of the Cardiac Child.—The second annual Institute for the Care of the Cardiac Child will be held Oct. 5 at the Children's Heart Hospital, Conshohocken Avenue. Panel discussions (10 a. m.-12 noon) will consider congenital heart disease, active rheumatic fever, and chronic rheumatic heart disease. The discussions will be resumed after a buffet luncheon in the hospital dining room, 12:30 p. m., at which the speaker will be Mr. Thomas D. McBride, vice-chancellor, Philadelphia Bar Association.

Society News.—Newly elected officers of the Philadelphia Roentgen Ray Society include: Dr. D. Alan Sampson, president; Dr. Edwin L. Lame, vice-president; Dr. Herbert M. Stauffer, secretary; and Dr. Randal A. Boyer, treasurer.——The Hawthorne Surgical Society, sponsored and organized by the 1945-46 class of the Graduate School of Medicine of the University of Pennsylvania, will hold its second annual dinner meeting in Chicago during the annual meeting of the American College of Surgeons Nov. 2. The cost will be $8 per person; $13 per couple. For reservations, write to the secretary-treasurer, Dr. Julian A. Sterling, 1351 W. Tabor Rd., Philadelphia 41. Membership in the society is open to those members of the Graduate School of Medicine who are fellows of the American College of Surgeons or diplomates of the American Board of Surgery.——Dr. Edward L. Bortz will serve as moderator Oct. 3, 8:30 p. m., for "Our Aging Population," a program for the public, presented without charge by the College of Physicians of Philadelphia, 19 S. 22nd St. On Oct. 10 the topic for the public program will be "Homosexuality and Sexual Deviants" and the moderator Dr. Calvin S. Drayer.

SOUTH CAROLINA

Medical Day.—Greenville Medical Day, Oct. 4, will be observed at the Greenville General Hospital. After discussion of recent advances in pediatrics by Dr. J. Earle Furman and in medicine by Dr. Hugh P. Smith Sr., both of Greenville, "Radioisotopes" will be considered by Dr. Robert Robbins, Temple University School of Medicine, Philadelphia; "Recent Advances in Obstetrics" by Dr. Robert A. Ross, university hospital of North Carolina School of Medicine, Chapel Hill; and "Recent Advances in Surgery" by Dr. W. Emory Burnett, Temple University School of Medicine, Philadelphia. After luncheon "Chemotherapy and Radiotherapy of Cancer" will be discussed by Dr. Robbins; "Surgical Treatment of Bowel Cancer" by Dr. Burnett; and "Surgical Treatment of Gynecologic Cancer" by Dr. Ross. A social hour and dinner will precede the presentation of "Cancer of the Breast" by Dr. J. Elliott Scarborough Jr., director of the Winship Clinic, Emory University, Ga., and of the Steiner Clinic, Grady Memorial Hospital, Altanta, Ga.

TENNESSEE

Medical Assembly at Chattanooga.—The Tennessee Valley Medical Assembly will convene at Read House, Chattanooga, Oct. 3-4, under the sponsorship of the Chattanooga and Hamilton County Medical Society. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will discuss "Management of Ureteral Calculi" Tuesday. Other out-of-state speakers and their first presentations include:

Philip Thorek, Chicago, Intestinal Obstruction.
Edgar Hull, New Orleans, Emergency Use of Corticoids and Corticotropins.
George T. Pack, New York, Carcinoma of the Breast.
Robert B. Greenblatt, Augusta, Ga., Use and Abuse of Endocrines in General Practice.
Arthur C. Curtis, Ann Arbor, Mich., Cutaneous Manifestations of Systemic Disease.
Brian B. Blades, Washington, D. C., Traumatic Injuries of the Chest.
Harry E. Bacon, Philadelphia, Anal and Rectal Lesions and Their Treatment.
Waldo E. Nelson, Philadelphia, Pediatric Care by the General Practitioner.
Alton Ochsner, New Orleans, Cancer of the Lung.
Thomas J. Dry, Rochester, Minn., Coronary Artery Disease.
Nicholson J. Eastman, Baltimore, Complications of Pregnancy.
Sara M. Jordan, Boston, The Irritable Colon.
Charles A. Doan, Columbus, Ohio, Diagnosis and Treatment of Acute Leukemic States.
Alexander Brunschwig, New York, Carcinoma of the Cervix.

Dr. Hess will be the honored guest at the banquet Monday, 7 p. m., which will be preceded by a cocktail hour, 5:30-6:30 p. m. John C. Krantz Jr., Ph.D., professor of pharmacology, University of Maryland School of Medicine, Baltimore, will present "The Simplicity to Wonder."

University News.—The University of Tennessee College of Medicine, Memphis, recently announced the appointment of Dr. Walter Fleischmann of the Veterans Administration Hospital on Lamar Avenue as assistant professor in the division of pediatrics and of Dr. Michael L. Gompertz of the Veterans Administration Hospital (Kennedy) as instructor in the division of medicine.——Dr. Edward H. Storer, Seattle, has been appointed assistant professor of surgery and director of the Surgical Research Laboratories, succeeding Dr. James D. Hardy, who resigned to become chairman of the department of surgery

V 1
195

at the University of Mississippi School of Medicine in Jackson.——The following promotions are among those recently announced by the University of Tennessee College of Medicine: from associate professor to professor, Dr. James N. Etteldorf (pediatrics); from assistant professor to associate professor, Dr. James A. Taylor (psychiatry); from instructor to assistant professor, Dr. Arthur D. Weatherhead (psychiatry) and Dr. Arliss H. Tuttle (pediatrics); from assistant to instructor, Dr. Will R. Mitchum (medicine).——At the school of biological sciences Dr. Albert Hand and Dr. William S. Cheek, instructors in the division of pathology and microbiology, have been made assistant professors, and Hortense Louckes, Ph.D., instructor in the division of physiology, has also been advanced to assistant professor.——Dr. William H. Morse, formerly of Blytheville, Ark., who recently returned from six years' service in the Army, has joined the staff of University of Tennessee College of Medicine as a full-time instructor in the department of urology.——Emile Van Handel, Ph.D., of Rotherdam, Holland, has joined the staff as research associate in the division of physiology. He will continue his investigations on fat metabolism and the genesis of arteriosclerosis.

TEXAS

Examinations for Local Health Directors.—The Texas State Department of Health announces an examination for director, local health unit 1A (salary range: $9,720-$12,120; possibly higher in metropolitan health departments). Positions may be located anywhere in the state where a vacancy exists for a local health unit director. The minimum qualifications are (1) an M.D. degree and one year's internship in a recognized hospital; (2) an M.P.H. degree or certification by the American Board of Preventive Medicine; (3) two years of field experience after internship in general public health practice; (4) three years of additional experience in special training, teaching, or practice in preventive medicine and public health; and (5) licensure to practice medicine in Texas. Applicants must be citizens of the United States. All original appointments to permanent positions are made for a probationary period of six months. Examinations will be conducted continuously in Austin and in various centers over the state. Applications for this position may be sent, until further notice, to: Merit System Council, 814 Littlefield Bldg., Austin, or to Dr. Henry A. Holle, Commissioner of Health, Texas State Department of Health, 410 E. Fifth St., Austin.

WEST VIRGINIA

Symposium on Pneumoconiosis.—The second Symposium on Coal Workers Pneumoconiosis will be presented at Golden Clinic, Memorial General Hospital, Elkins, Oct. 4. Dr. Oscar A. Sander, associate professor of medicine, Marquette University School of Medicine, Milwaukee, will be general chairman. The guest speakers include Lawrence B. Berger, chief, health branch, Bureau of Mines, Pittsburgh; Dr. Edward A. Gaensler, visiting thoracic surgeon, Boston City Hospital; John C. Gilson, M.B., director, Pneumoconiosis Unit, England; Dr. Adolph G. Kammer, head, department of occupational health, graduate school of public health, University of Pittsburgh School of Medicine; Dr. Joseph E. Martin Jr., Elkins; Dr. Thomas Parran, dean, graduate school of public health, University of Pittsburgh School of Medicine; Dr. Frank Princi, Kettering Laboratory, University of Cincinnati College of Medicine; and Dr. David H. Waterman, Knoxville, Tenn. For hotel reservations and information write Dr. Joseph E. Martin Jr., Golden Clinic, Elkins (phone: Elkins 1220).

Chest Physicians Meet at White Sulphur Springs.—The annual meeting of the Potomac chapter of the American College of Chest Physicians will be held at the Greenbrier, White Sulphur Springs, Oct. 7. The following program will be presented at the morning session:

Morphological Changes in Tuberculosis, Milford L. Hobbs, Morgantown.
Pulmonary Manifestations of Systemic Disease, Harold S. Pettit, Charleston, S. C.
Mediastinal Tumors, Edgar W. Davis, Washington, D. C.

In the afternoon "Medical Aspects of Cardiac Valvulotomy" will be discussed by Dr. C. Edward Leach, Baltimore, and "Angiocardiography in the Diagnosis of Thoracic Disease" by Dr. Herbert E. Sloan, Ann Arbor, Mich. At the completion of the formal program in the afternoon, there will be a radiological conference, with Dr. Harold S. Pettit, Charleston, S. C., as moderator. Mr. Charles E. Hodges, Charleston, managing director of the Charleston Chamber of Commerce, guest speaker at the annual luncheon, will have as his subject "West Virginia, Your Host—What Do You Know About It?"

Rural Health Conference.—The eighth annual Rural Health Conference will be held at Jackson's Mill Oct. 6 under the sponsorship of the West Virginia State Medical Association and the auspices of its rural health committee (Dr. Charles E. Staats, Charleston, chairman), with the support and cooperation of the West Virginia Farm Bureau, the Farm Women's Council, the Agricultural Extension Division of West Virginia University, and the state department of health. Aubrey O. Gates, Little Rock, Ark., field director, A. M. A. Council on Rural Health, will serve at both the morning and the afternoon sessions as moderator for a panel composed of representatives of the West Virginia Farm Bureau, Farm Women's Council, Agricultural Extension Service, West Virginia State Medical Association, state department of health, West Virginia University Medical Center, 4-H clubs, Future Farmers of America, and Blue Cross-Blue Shield plans in the state. The topics to be considered include: mental health; public health protection; rural ambulance service; the new medical center at West Virginia University; farm safety; home safety; physician distribution in rural areas; foods and nutrition; need for dental health services; and the Blue Cross-Blue Shield program in West Virginia. The West Virginia State Medical Association will be host at a luncheon in the Mt. Vernon Dining Hall. Part of the proceedings will be televised and shown subsequently before interested groups in the state.

WISCONSIN

University News.—The regents of the University of Wisconsin Medical School, Madison, recently approved a $1,609,152 schedule of costs for an addition to Service Memorial Institutes, the medical building. The structure will be a six-story building, facing Linden Drive at Charter Street in the medical center of the Madison campus. Four floors and part of the basement will be devoted to the work of the anatomy department, now housed in Science Hall. A new student laboratory and the department of physiological chemistry will be located on the fifth floor.

Orthopedic Field Clinics.—The Bureau for Handicapped Children, state department of public instruction, announces the following schedule for orthopedic field clinics: Racine, Oct. 5-6; Eau Claire, Oct. 10-11; Sheboygan, Oct. 19-20; La Crosse, Oct. 25-28. The clinics are conducted for persons under 21 years of age who come within the state's definition of a crippled child. It is preferred that referral be made by the family physician, but when this is not feasible arrangements may be made by writing to the bureau. Inquiries should be addressed to the Bureau for Handicapped Children, 146 North, State Capitol, Madison 2.

HAWAII

Society News.—Michael Heidelberger, Ph.D., professor of immunochemistry, Columbia University College of Physicians and Surgeons, New York, recently addressed the Hawaii chapter of the Society of the Sigma Xi on "Antigens and Antibodies."——Dr. Robert S. Pollack of San Francisco spoke before the Honolulu County Medical Society on "Cancer of the Head and Neck."——Dr. Munawar Ali, president of the Pakistan Medical Association, accompanied by Mrs. Ali, stopped in Honolulu on their medical trip around the world.

Personal.—Dr. Richard K. C. Lee, Honolulu, president of the Territorial Board of Health, recently returned from a good will tour of Asia where, under the sponsorship of the International Education Exchange Program of the State Department, he lectured in Korea, Formosa, Hong Kong, Singapore, Malaya, and Indonesia.——The new commanding officer of the Tripler

Army Hospital, Honolulu, is Brig. Gen. John F. Bohlender, M. C., who came to Hawaii from Ft. Sam Houston, Texas. Dr. Bohlender served in Hawaii at the old Tripler Hospital between 1931 and 1934 and during World War II served in the South West Pacific.

GENERAL

Society News.—The interim meeting of the house of delegates of the **Association of American Physicians and Surgeons, Inc.,** at the LaSalle Hotel, Chicago, Oct. 7-8, will have as banquet speaker Friday at 7 p. m. Mr. William L. McGrath, Cincinnati, United States Employer Delegate to the International Labor Organization. All physicians who are eligible for membership in the American Medical Association and their wives are welcome at the banquet. Per plate charge is $6.

Awards in Tuberculosis.—At the annual meeting of the National Tuberculosis Association in Milwaukee, William H. Feldman, D.V.M., professor of pathology at the Mayo Foundation Graduate School of the University of Minnesota, Rochester, was awarded the Trudeau medal, given annually for meritorious contribution on the cause, prevention, or treatment of tuberculosis. The Will Ross medal, awarded annually for distinguished contribution to the tuberculosis control movement in a field other than the medical sciences, was bestowed on Frederick D. Hopkins, Ph.B., Glen Rock, N. J., retired NTA executive secretary.

Meeting of Obstetricians and Gynecologists.—The Central Association of Obstetricians and Gynecologists will hold its 23rd annual meeting at the Deshler-Hilton Hotel, Columbus, Ohio, Oct. 6-8, under the presidency of Dr. Frank L. McPhail, Great Falls, Mont. The guest speaker, Dr. Daniel G. Morton, Los Angeles, will discuss "The Making of the Obstetrician-Gynecologist" at the close of the Thursday morning session. The annual prize award paper, "The Cardiac Output During Labor" by Drs. Charles H. Hendricks and Edward J. Quilligan, Cleveland, will precede the presidential address at the close of the Friday morning session. In all, 18 presentations have been scheduled.

Annual Meeting of Medical Illustrators.—The Association of Medical Illustrators will hold its 10th annual convention at the Barbizon-Plaza Hotel, New York City, Oct. 1-5. A symposium on publication problems involving the doctor-author, illustrator, copy editor, engraver, and printer has been scheduled for Monday afternoon and "Discussion of the Professional Problems of the Medical Illustrator" for Tuesday afternoon. At 5 p. m. Monday there will be a cocktail reception and the formal opening of the exhibit at the Hotel Art Gallery, with welcome by the medical schools in the New York area. The annual banquet will be held at 7 p. m. Tuesday.

Meeting on Psychosomatic Medicine.—The Academy of Psychosomatic Medicine will hold its second annual meeting Oct. 6-8 at the Plaza Hotel in New York City. The subject of this year's scientific program is "The Psychosomatic Aspects of Drug Administration." There is no registration fee. Guests may attend the banquet. The speakers will include: Dr. Lester L. Coleman, New York (Wonder Drugs—A Psychosocial Phenomenon); Dr. Harry Kozol, Boston (Epilepsy: Modern Treatment with Drugs as a Keystone of Psychosomatic Method); Dr. George B. Koelle, Philadelphia (The Clinical Neuropharmacology of Mescaline and *d*-Lysergic Acid); Dr. Joseph E. F. Riseman, Boston (Experiences with Placebos in the Treatment of Angina Pectoris); Dr. Mark D. Altschule, Belmont, Mass. (Ideas About the Metabolism of Epinephrine); and Dr. M. Murray Peshkin, New York (Psychosomatic Aspects of Drugs in Allergy Practice).

Meeting of Medical Record Librarians.—The 27th annual conference of the American Association of Medical Record Librarians will meet at the LaSalle Hotel, Chicago, Oct. 3-7. Tuesday afternoon Dr. Jack Masur, assistant surgeon general, U. S. Public Health Service, Washington, D. C., will discuss "Growth and Development of a Profession," and Phillip E. Ryan, executive director, National Health Council, New York, will outline the program of that organization. Dr. Charles W. Mayo, Rochester, Minn., will speak at the banquet at 7 p. m. Dr. Albert H. Holland Jr., medical director, Food and Drug Administration, Washington, D. C., and George F. Archambault, chief of pharmacy branch, division of hospitals, Department of Health, Education and Welfare, Washington, D. C., will participate in a round-table panel Wednesday morning on the recording and reporting of drug reactions. Dr. Charles U. Letourneau, director of the program in hospital administration, Northwestern University Medical School, Chicago, will be a panel member for the true and false audience-participation program of human aspects of supervision on Wednesday. A tour of Chicago hospitals is scheduled for Friday morning.

Annual Conference on Rheumatic Diseases.—The third annual Midwest Conference on Rheumatic Diseases will be held at Henry Ford Hospital, Detroit, Oct. 5, under the sponsorship of the Michigan chapter, Arthritis and Rheumatism Foundation, and the Michigan Rheumatism Society and under the cosponsorship of the department of postgraduate medicine, University of Michigan Medical School, Ann Arbor; the Academy of General Practice; Michigan State Medical Society; Wayne University College of Medicine, Detroit; and the Wayne County Medical Society. The following program will be presented:

Diagnosis and Treatment of Rheumatic Fever, Currier McEwen, New York.
Gout, Charley J. Smyth, Denver.
X-Ray in the Diagnosis of Rheumatic Diseases, Paul C. Hodges, Chicago.
Osteoarthritis, Russell L. Cecil, New York.
Diagnosis of Rheumatoid Arthritis, Joseph L. Hollander, Philadelphia.
Treatment of Rheumatoid Arthritis, Joseph J. Bunim, Bethesda, Md.
Diagnosis and Treatment of Rheumatoid Spondylitis, Richard H. Freyberg, New York.
Back Pain, Carl E. Badgley, Ann Arbor, Mich.
Physical Medicine in Rheumatic Diseases, Edward W. Lowman, New York.
The Painful Shoulder, Otto Stein Brocker, New York.

Registration fee will be $5 except for interns, residents, and physicians in the service, who are not being charged a registration fee. Inquiries may be directed to the general chairman, Dr. John W. Sigler, Henry Ford Hospital, Detroit.

Annual Clinical Conference.—The 33rd annual fall clinical conference of the Kansas City Southwest Clinical Society will convene at the Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. Elmer Hess, Erie, Pa., President, American Medical Association, will deliver an address on Monday entitled "Can the General Practitioner Be a Urologist?" The Edward Holman Skinner Memorial Lecture, "Considerations Concerning the Roentgen Diagnosis of Carcinoma of the Lung," will be presented Saturday by Dr. Eugene P. Pendergrass, Philadelphia. Other guest speakers and their first presentations will include:

Oscar T. Clagett, Rochester, Minn., Esophageal-Hiatus Hernia.
A. Carlton Ernstene, Cleveland, Newer Therapeutic Tools in Cardiovascular Disease.
Frederick W. Fitz, Chicago, The Doctor and His Heart.
John H. Gilmore, Chicago, Roentgenographic Survey of the Abdomen.
James H. Growdon, Little Rock, Ark., Surgery in the Diabetic Patient.
Edwin F. Hirsch, Chicago, Variations of the Blood Lipids in Health and Disease.
William S. Middleton, Washington, D. C., Zoonoses.
Rudolf J. Noer, Louisville, Ky., Changing Concepts in Treatment of Intestinal Obstruction.
Edward H. Rynearson, Rochester, Minn., Varieties of Diabetes.
Theodore E. Sanders, St. Louis, Management of Acute Eye Emergency.
Harris B. Shumacker Jr., Indianapolis, Management of Acute Pancreatitis and Recurrent Pancreatitis.
Newton D. Smith, Fort Worth, Texas, Relationship of Anorectal Disease to General Medicine.
J. Robert Willson, Philadelphia, Practical Aids in Gynecologic Diagnosis.
Stewart Wolf, Oklahoma City, Gastrointestinal Tract of the Aged.

A clinicopathological conference and a conference on the management of diabetes have been scheduled, as have the following panels: Nonmalignant Lung Diseases; Postcholecystectomy Syndrome; Bleeding Gastrointestinal Lesions; Urinary Tract Infections; and Hormones and Newer Drugs—Their Use and Abuse. Operative clinics, clinical demonstrations, and a series on "How You Do It" will be presented on color television Sunday, Monday, and Tuesday.

V 1
195

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Sept. 10, 1955 Paralytic Type	Sept. 10, 1955 Total Cases Reported	Sept. 11, 1954, Total
New England States			
Maine	7	22	5
New Hampshire	..	20	1
Vermont	5	13	6
Massachusetts	116	290	83
Rhode Island	5	33	12
Connecticut	8	73	23
Middle Atlantic States			
New York	59	245	122
New Jersey	..	66	57
Pennsylvania	..	73	104
East North Central States			
Ohio	18	97	137
Indiana	8	27	46
Illinois	34	112	148
Michigan	16	68	115
Wisconsin	91	224	17
West North Central States			
Minnesota	16	45	38
Iowa	9	33	101
Missouri	3	15	51
North Dakota	2	5	13
South Dakota	..	1	5
Nebraska	8	19	88
Kansas	3	18	56
South Atlantic States			
Delaware	..	3	..
Maryland	4	12	15
District of Columbia	2	4	4
Virginia	13	20	44
West Virginia	11	20	42
North Carolina	7	21	37
South Carolina	9	22	13
Georgia	3	6	55
Florida	5	23	33
East South Central States			
Kentucky	7	19	82
Tennessee	6	20	34
Alabama	5	12	19
Mississippi	..	3	13
West South Central States			
Arkansas	4	9	16
Louisiana	5	17	19
Oklahoma	2	29	29
Texas	36	94	131
Mountain States			
Montana	3	10	7
Idaho	1	5	11
Wyoming	..	2	20
Colorado	2	12	24
New Mexico	2	5	17
Arizona	3	8	9
Utah	..	7	1
Nevada	..	3	5
Pacific States			
Washington	21	38	25
Oregon	10	20	27
California	29	64	159
Territories and Possessions			
Alaska	2	2	11
Hawaii	3	4	..
Puerto Rico	1	1	..
Total	604	2,016	2,130

CANADA

Meeting on Fertility.—The second annual meeting of the Canadian Society for the Study of Fertility will convene at the Royal York Hotel, Toronto, Oct. 6-8. The sessions will open at 9 a. m. Thursday, followed by a panel discussion on the general practitioner's role in diagnosis and treatment of infertility. At 11 a. m. "Experience with Uterotubal Insufflation by a New Kymographic Insufflation with Co_2 Derived from an Effervescent Tablet; Demonstration of Apparatus and Graphs" will be outlined by Dr. Isidor C. Rubin, New York. A film, "The Physiology of Reproduction," and a film on ovulation in the rat (by permission of Dr. Richard J. Blandau, Seattle) will precede discussion at 3:15 p. m. of "Treatment of Female Sterility with X-Ray to the Ovaries and Pituitary with Special Reference to Congenital Abnormalities of the Offspring" by Dr. Ira I. Kaplan, New York. The Thursday session will end with "The Occurrence of Pregnancy with Very Low Sperm Counts" by Dr. Moses M. Braunstein, Montreal. Dr. John O. Haman, San Francisco, former president, American Society for the Study of Sterility, will be chairman for the Friday morning program, including: "Impact of the Emotions on a Patient with Infertility" by Dr. A. Herbert Marbach, Philadelphia; "Effects of Psychic Stimuli on Uterine Contraction Patterns and Their Relationship to Fertility" by Dr. William M. Bickers, Richmond, Va.; and "Surgical Aspects of Male Sterility" by Donald Young, F. R. C. S. (E), Liverpool, England, for which the discussant will be Dr. Fred A. Simmons, Boston. The following program will be presented Friday afternoon:

Physiology of Endometrium in Relation to Conception, Edward C. Hughes, Syracuse, N. Y. (discussant, Clyde Randall, Buffalo).

Polycystic Diseases of the Ovaries, George A. Simpson, F.R.C.S. (C), Montreal.

Fertility Resulting from Pelvic Pyrexia Induced by Bipolar Intravaginal Diathermy, Abner I. Weisman, New York.

Saturday will be devoted to clinical demonstrations at Toronto hospitals. The convention fee of $10 includes registration and banquet charges. For information, write Dr. Earl R. Plunkett, Secretary-Treasurer, 469 Waterloo St., London, Ontario, Canada.

FOREIGN

Postgraduate Lectures in Madrid.—The Hospital Provincial de Madrid, Spain, announces the eighth course of medicosurgical postgraduate lectures, to be delivered Nov. 2-30 in the Hospital Provincial de Madrid, the Policlinica de Aparato Digestivo of the Faculty of Medicine of Madrid, and the Clinica de la Concepcion of Madrid. The topics are: "Darkness and Horizons of Digestive Pathology," "Functional and Organic Changes of the Biliary Tract," "Granulomatous Enteritis," and "Differential Diagnosis of True and False Acute Abdomen." There will also be a seminar, practical demonstrations on roentgen and endoscopic techniques and on clinical laboratory analysis, and a course on anesthesia and techniques in surgery of the digestive tract. Dr. Richard B. Cattell of the Lahey Clinic, Boston, will serve on the faculty. Applications for registration should be made to the Secretaria particular del Dr. C. Gonzalez-Bueno, calle de Villanueva, 12, Madrid, Spain, before Oct. 15.

CORRECTIONS

Residency Training in Psychiatry.—In the Internship and Residency Number of THE JOURNAL, Sept. 24, 1955, page 334, the following data should have been indicated for the residency training program in psychiatry: Veterans Administration Hospital, North Little Rock, Ark.: first year residencies offered, 4; total residencies offered, 12; length of approved program (years), 3.

Parts of Medical Center Completed.—In the news item in THE JOURNAL, Aug. 13, 1955, page 1375, entitled "Parts of Medical Center Completed," the statement was made that the Loyola University Stritch School of Medicine and College of Dentistry building was at present under construction. Dr. John F. Sheehan, dean of the school of medicine, writes to point out that as yet there is no construction under way and that present plans call for the erection of the new Stritch School of Medicine building in the northwest part of Chicago on a tract of land recently annexed from Skokie. The dental school, Dr. Sheehan states, will remain in its present location.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* New York City, Oct. 23-27. *Written.* Various locations in United States and Canada, July 20, 1956. Final date for filing application is Jan. 20. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* Washington, D. C., Oct. 14-16. Final date for filing application was March 15. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32, N. Y.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination is October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application is Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical Examination.* Chicago, Oct. 3-7. Written. January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Written and Practical.* Chicago, Oct. 6-8. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, Oct. 17-18; New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part I.* Centers throughout the United States, in Europe and in the Far East, Oct. 26 and March 28. Closing date for the October examination was July 1 and for the March examination is December 1. *Part II.* Chicago, Oct. 27-28; New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, Mar. 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

ACADEMY OF PSYCHOSOMATIC MEDICINE, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

AMERICAN ACADEMY FOR CEREBRAL PALSY, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

AMERICAN ACADEMY OF NEUROLOGICAL SURGERY, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago, Oct. 3-6, Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION OF BLOOD BANKS, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

AMERICAN COLLEGE OF ANESTHESIOLOGISTS, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

AMERICAN COLLEGE OF CARDIOLOGY INTERIM MEETING, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

AMERICAN COLLEGE OF GASTROENTEROLOGY, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

AMERICAN COLLEGE OF SURGEONS, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

AMERICAN DENTAL ASSOCIATION, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

AMERICAN HEART ASSOCIATION, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN PUBLIC HEALTH ASSOCIATION, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN SCHOOL HEALTH ASSOCIATION, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS AND SURGEONS, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Hotel Barbizon Plaza, New York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska College of Medicine, Omaha 5, Neb., Corresponding Secretary.

ASSOCIATION OF MILITARY SURGEONS OF THE U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

CONGRESS OF NEUROLOGICAL SURGEONS, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

DELAWARE, MEDICAL SOCIETY OF, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

GERONTOLOGICAL SOCIETY, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

GULF COAST CLINICAL SOCIETY, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

INTER-SOCIETY CYTOLOGY COUNCIL, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3 Wis., Executive Director.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

MIDWEST CONFERENCE ON RHEUMATIC DISEASES, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, Medical Director.

MIDWESTERN SECTION OF AMERICAN FEDERATION FOR CLINICAL RESEARCH, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J Glaser, Barnes Hospital, St. Louis 10, Secretary.

MISSISSIPPI VALLEY TRUDEAU SOCIETY, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

NATIONAL ASSOCIATION FOR MENTAL HEALTH, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

OKLAHOMA CITY CLINICAL SOCIETY CONFERENCE, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

OMAHA MID-WEST CLINICAL SOCIETY, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.

Charleston, S. C., Oct 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.

Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.

Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2. Governor.

Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.

Newark, N. J., Nov. 9 Dr Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.

SOCIETY OF CLINICAL SURGERY, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

SOUTHERN MEDICAL ASSOCIATION, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

SOUTHERN SOCIETY OF CANCER CYTOLOGY, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, Phoenix, Ariz., Nov 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

STATE MEDICAL JOURNAL CONFERENCE, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

TENNESSEE VALLEY MEDICAL ASSEMBLY, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

THE CONSTANTINIAN SOCIETY, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

VIRGINIA, MEDICAL SOCIETY OF, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

WESTERN ORTHOPEDIC ASSOCIATION, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

CANADIAN SOCIETY FOR THE STUDY OF FERTILITY, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

CONFERENCE OF INTERNATIONAL UNION FOR HEALTH EDUCATION OF THE PUBLIC, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION OF LIMNOLOGY, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

CONGRESS OF INTERNATIONAL ASSOCIATION OF LOGOPEDICS AND PHONIATRICS, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

CONGRESS OF INTERNATIONAL SOCIETY OF HEMATOLOGY, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

CONGRESS OF INTERNATIONAL SOCIETY FOR RESEARCH ON ANESTHESIA, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

CONGRESS OF LATIN SOCIETY OF OPHTHALMOLOGY, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

EUROPEAN CONGRESS OF ALLERGOLOGY, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

EUROPEAN SYMPOSIUM ON VITAMIN B12, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

INTERNATIONAL ACADEMY OF LEGAL AND SOCIAL MEDICINE, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

INTERNATIONAL ACADEMY OF PATHOLOGY, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

INTERNATIONAL COLLOQUIUM ON CHLORPROMAZINE AND NEUROLEPTIC AGENTS IN PSYCOTHERAPY, Ste Anne Clinic of Mental Diseases, Paris, France, Oct. 20-22. Prof. Jean Delay, College of Medicine of Paris, 1, rue Cabanis, Paris 14e, France, Chairman.

INTERNATIONAL CONGRESS OF ALLERGOLOGY, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

INTERNATIONAL CONGRESS OF ANTHROPOLOGICAL AND ETHNOLOGICAL SCIENCES, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

INTERNATIONAL CONGRESS FOR THE HISTORY OF SCIENCE, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

INTERNATIONAL CONGRESS OF HYDATID DISEASE, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL SOCIETY OF BRONCHOESOPHAGOLOGY, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

INTERNATIONAL CONGRESS OF NEO-HIPPOCRATIC MEDICINE, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

INTERNATIONAL CONGRESS OF RADIOLOGY, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

INTERNATIONAL CONGRESS OF WORLD CONFEDERATION FOR PHYSICAL THERAPY, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

INTERNATIONAL GENERAL MEDICAL CONGRESS, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fe 3100, Rosario, Argentina, S. A., Chairman.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

INTERNATIONAL PROFESSIONAL UNION OF GYNECOLOGISTS AND OBSTETRICIANS, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

NORTH QUEENSLAND MEDICAL CONFERENCE, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

PAN AMERICAN CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

PAN AMERICAN MEDICAL SOCIAL CONVENTION, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

VENEZUELAN CONGRESS OF MEDICAL SCIENCES, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

WORLD CONGRESS ON FERTILITY AND STERILITY, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Oct. 3

ABC-TV, 8 p. m. EDT. "TV Reader's Digest" drama is titled "Six Hours of Surgery" and tells of the "intense personal problems of five persons involved in a delicate heart operation on a 16-year-old boy."

NBC-TV, 9 p. m. EDT. "Medic" presents "And There Was Light," second of a two-part episode on postpartum psychosis. In this show, a young mother who sought psychiatric treatment after the birth of a baby conquers her illness and returns to her family.

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" televises the activities of a physiological emergency team at the Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases, New York. Presented in cooperation with the American Medical Association.

Wednesday, Oct. 5

NBC-TV, 11:30 a. m. EDT. "Home" presents "Medical and Health News with Howard Whitman."

Sunday, Oct. 9

NBC-TV, 3 p. m. EDT. "Dr. Spock"—Inaugural telecast of a new half-hour show on child care and development, featuring Dr. Benjamin Spock.

MAGAZINES

Collier's, Sept. 30, 1955

"The Doctor with 2,300 Patients a Day," by Robert Bendiner

Dr. Henry M. Friedman, public health inspector at the Port of New York, "has protected these shores from the kind of contagion that for centuries has traveled by ship." He has given swift physical examinations to thousands a day for so long that he often can make a diagnosis at a glance.

Look, Oct. 4, 1955

"VIP—The World's 100 Most Important People," by Donald Robinson

The author selects 8 men in the health field in his listing of the 100 most important people: Dr. Jonas Salk, Selman A. Waksman, John Enders, Dr. Hans A. Krebs, Dr. Bernard N. Halpern, Dr. Hans Selye, Tadeus Reichstein, and Bernardo A. Houssay.

Parade, Oct. 2, 1955

"The Doctors Who Try Our Patience," by Hannah Smith

In answer to a recent *Parade* article entitled "The Patients Who Drive Us Crazy," the author writes of such doctors as "Dr. Joyboy, the optimist" (who can't believe there is anything seriously wrong); "the triple tester" (who won't make a simple diagnosis without a battery of tests); "the jargon juggler" (who likes to keep things mysterious); "the man with the saw" (who performs unnecessary surgery); and others.

Redbook, October, 1955

"The Doctors Who Fell in Love," by Bob Willoughby and Wallace Croatman

A picture story showing the devotion—to their patients and to each other—of Dr. Will Kamprath and his wife, Dr. Coll Kamprath, who practice in the small town of Utica, Neb.

"How Safe Are School Lunches?" by Alice Lake

"Recent reports of disease outbreaks indicate that too often school lunches are making children sick." The author points out the hazards of mass food preparation and recommends that parents make sure that conditions are sanitary in their schools.

"Check List for Your Child's Health," by Alton L. Blakeslee

"Now—before the cold weather starts—is a good time to have your child examined by a pediatrician or your family physician." The author presents a list "designed to give you an advance idea of what points your doctor will cover in his examination, and also what he is likely to ask you about your child's health history."

Woman's Home Companion, October, 1955

"Abortion in America Today," by Morton Sontheimer

A discussion of legal and medical problems involved in both criminal abortions and legal abortions. "In America today decisions on legal abortions vary from doctor to doctor, from hospital to hospital. Doctors didn't create this fluctuating situation and they don't like it. It has been deposited in their laps by public indifference and vast national ignorance of our present abortion problem. . . . And linked to the legal or therapeutic abortion is the larger problem of criminal abortion. Most of these illegal operations are also performed by doctors, according to informed opinion."

Household, October, 1955

"When Should You Change Your Doctor?" by Lawrence Galton

The purpose of this article is "to emphasize the importance of understanding what good medical treatment is—whether the doctor is an outright bungler or a highly recommended physician who is capable, but who isn't helping as much as you might reasonably expect, with whom you don't get along well, or from whom you come away feeling frustrated."

Reader's Digest, October, 1955

"What the Doctor Sees in You," by J. D. Ratcliff

"Of all the diagnostic aids that scientific medicine depends upon today, the X-ray is one of the most vital." Mr. Ratcliff explains the various uses of this aid and cites examples of the progress radiology has made in recent years.

"Memphis Declares War on a Woman-Killer," by Lois Mattox Miller

The story of what the author calls "the boldest health crusade in history." National, state, and local groups promoted the mass examination of women in Memphis and Shelby County, Tenn., to find unsuspected cases of cancer of the cervix. Nearly 90,000 women responded, and of that number 1,800 were called back for further examination.

Family Circle, October, 1955

"Rheumatic Fever Can Be Curbed," by Ruth and Edward Brecher

"By means of wholehearted cooperation among teachers, parents, nurses, doctors, and heart associations . . . countless children are being protected from rheumatic fever—a disease that every year kills or disables more American children than polio." The article tells readers that "if your child has a sore throat, phone your doctor right away" and lists questions that such parents should be prepared to answer.

"Eat Your Way to Good Health," by Lawrence Galton

A report on how "nutritional therapy" is helping to fight various disease conditions. The article quotes the *Journal of Postgraduate Medicine* as saying: "Among some groups of patients it is likely that more than 50% could be helped by proper dietary advice. The public badly needs guidance from trained physicians in how to obtain better health through better nutrition."

V 1
195

GOVERNMENT SERVICES

ARMY

Physician Needed at Ordnance Depot in Alabama.—The position of civilian medical officer at the ordnance depot near Anniston, Ala., will become vacant Oct. 1 and applications for a successor are now being received. The successful applicant will be on a civil service status and receive a gross annual salary of $10,065 with paid vacations from 13 to 26 working days a year and 8 federal holidays. The regular tour of duty is eight hours a day, five days a week. The major duties of this position are the examination of employees and applicants, the first-aid treatment of injured employees, and the sanitary inspection of facilities. A staff of nurses and modern medical facilities are available.

This Army ordnance depot has a civilian strength of about 4,350 with 16 military officers and their families and no enlisted personnel. It receives, stores, and maintains automotive equipment and supplies and ammunition. It is located about 60 miles from Birmingham and 110 miles from Atlanta and covers an area of 16,000 acres. Adjacent to the depot are housing facilities for about 400 families at reasonable rental. The medical officer is encouraged to live in one of these residences, where he may supplement his salary by being available to the residents after duty hours. Applicants should address their letters to the Civilian Personnel Officer, Anniston Ordnance Depot, Anniston, Ala., on receipt of which arrangements will be made for interviews.

Color Television System for Army Medical Center.—The nation's first installation of compatible color television for hospital use will be made by the Radio Corporation of America to serve three government medical activities located at the Walter Reed Army Medical Center, Washington, D. C. The installation will provide three complete color television systems for use by the Armed Forces Institute of Pathology, the Walter Reed Army Hospital, and the Army Medical Service Graduate School. Contract for the color television system was awarded on the basis of a low bid of $425,800. Installation, now underway, is scheduled for completion early next year. The system will be operated by the Army Signal Corps. It will be available to other Defense Department agencies in the event of national emergencies. Ultimately, the system will be expanded to connect other governmental hospitals and military medical installations into a medical network for exchange of information and services. The independent but interconnected installation provides the government services with maximum flexibility and utilization of the color TV system. For example, it will be possible for a pathologist at the AFIP to view an operation at the Walter Reed Hospital two blocks away. If the removed tissue requires laboratory pathological investigation, it can be sent by pneumatic tube direct from the Walter Reed Hospital surgery to the AFIP. Then, while the surgeon who removed the tissue watches on his TV monitor, the pathologist can prepare the specimen for slide projection and hold a two-way picture and voice consultation with the surgeon. This initial application of compatible color television, operating over distances measured in city blocks . . . promises an eventual national medical TV network that will enable doctors, surgeons, and research scientists anywhere in the country to obtain directly the consultation services of specialists, demonstrations of latest advances in surgical and medical procedure, and advanced medical teaching.

ATOMIC ENERGY COMMISSION

New Director of Division of Biology and Medicine.—The U. S. Atomic Energy Commission announces the appointment of Dr. Charles L. Dunham as director of the commission's division of biology and medicine, effective Oct. 1. Dr. Dunham will succeed Dr. John C. Bugher, who will return to the Rockefeller Foundation, which recently announced his appointment as director of medical education and public health. Dr. Dunham has been deputy director of the division since July, 1954. Appointment of Dr. Charles W. Schilling as deputy director of the division succeeding Dr. Dunham also was announced. Dr. Shilling joined the commission in July, 1955, on his retirement as captain, Medical Corps, U. S. Navy. Dr. Shilling had served in the Navy for 28 years and was widely known for his role as senior medical officer in the rescue of personnel from the stricken submarine Squalus in 1939.

NAVY

Course for Reserve Officers.—A course in Medical Aspects of Special Weapons and Radioactive Isotopes for active and inactive regular and reserve medical department officers will convene at the Naval Medical School, Bethesda, Md., on Monday, Oct. 3, 1955, and continue to Saturday, Oct. 15. The first week of instruction will be on Medical Aspects of Special Weapons and Radioactive Isotopes with particular reference to personnel casualties from atomic explosions. During the second week professional and administrative topics will be presented including a symposium on reserve medical programs.

Inactive reserve medical department officers desiring to attend should submit their request for 14 days' training duty to their commandant's office at the earliest practicable date. Messing facilities are available. BOQ facilities are limited and will be available on a first-come, first-served basis only. The commandants of the first, third, fourth, fifth, sixth, eighth, and ninth naval districts and Potomac River naval command have each been assigned a quota for this course. Officers of the medical department on active duty may be given "authorization orders" (at no expense to the government). Orders should direct reporting to the commanding officer, U. S. Naval Medical School, NNMC, Bethesda, Md., prior to 4 p. m., Sunday, Oct. 2, 1955; officers will be detached on Saturday morning, Oct. 15, 1955. Officers availing themselves of this training are requested to assure that an advance copy of orders issued be forwarded to the reporting activity as early as possible.

VETERANS ADMINISTRATION

Rehabilitation of Aged Veterans.—Veterans Administration launched a program on Sept. 8 of planned living to rehabilitate aged veterans in its domiciliary "homes." The new program is designed to rehabilitate as many domiciliary members as possible to enable them to become productive citizens again in their home communities. For those not susceptible to this type of rehabilitation, the program is designed to enable them to enjoy their remaining years more fully with security and dignity, VA said. This program will be applicable to the 17,000 members presently receiving sheltered care in the 17 VA domiciliaries. Domiciliary members are disabled veterans who are so incapacitated that they are unable to earn a living but do not require full-time nursing or hospital care. Most domiciliary members are in the older age brackets.

The new program has three objectives: (1) to provide a place where eligible disabled veterans can live under conditions that will promote health and contentment, (2) to furnish authorized articles and services that they are unable to provide for themselves, including necessary medical care and hospitalization, and (3) to institute rehabilitation measures so as to enable each disabled veteran to return to his community or, where this is not possible, to function at maximum capacity in domiciliary status. The program will have an activity planning board that will draft an individual plan for each member. This daily plan of living will be based on a full medical evaluation and will be supplementary to prescribed medical care by contributing to medical and social rehabilitation objectives. VA said members will be encouraged to apply for jobs in which they have had previous experience or for which they may become qualified through training. These jobs may be in the domiciliaries themselves, or in VA hospitals or centers. When they are sufficiently rehabilitated to leave the domiciliaries as members, they may be employed by VA as regular civil service employees if they qualify or they may seek employment elsewhere with the assistance of the U. S. and state employment services.

DEATHS

Albus, William Reuben ✙ Chicago; born in Catawissa, Pa., Dec. 5, 1893; Rush Medical College, Chicago, 1933; interned at the Presbyterian Hospital; surveyor for the joint commission on accreditation of hospitals attached to the American Hospital Association; formerly a member of the professional field staff of the Council on Medical Education and Hospitals of the American Medical Association; served in the medical reserve corps of the U. S. Army from 1934 to 1947, retiring with the rank of colonel; was a bacteriologist interested in the Lactobacillus acidophilus action in milk, for which he was elected a member of the Cosmos Club; died Sept. 10, aged 61, of cerebral vascular accident.

Auld, Frank Parkinson, Shelbyville, Ill.; Barnes Medical College, St. Louis, 1903; at one time district health superintendent of the state department of health; died July 16, aged 79.

Berner, Frank ✙ New York City; Universität Basel Medizinische Fakultät, Switzerland, 1924; also a graduate in pharmacy; member of the American Psychoanalytic Association, American Psychosomatic Society, American Psychiatric Association, and the American Orthopsychiatric Association; for many years on the faculty of Columbia University College of Physicians and Surgeons; associated with the Neurological Institute; died in the Lenox Hill Hospital Aug. 4, aged 60, of multiple myeloma.

Bopp, Henry William ✙ Terre Haute, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the American Society of Plastic and Reconstructive Surgery; past-president of the Vigo County Medical Society; for six years deputy coroner; chairman emeritus of the executive committee of the Union Hospital; died July 27, aged 74, of cerebral vascular accident, bronchiectasis, and chronic pulmonary fibrosis.

Butt, Miriam M. ✙ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1894; an associate member of the American Medical Association; fellow of the American Academy of Ophthalmology and Otolaryngology; on the staff of the Woman's Hospital; died May 19, aged 82, of cerebral thrombosis and arteriosclerosis.

Clark, John Hubert, Knoxville, Tenn.; Meharry Medical College, Nashville, 1940; interned at the George W. Hubbard Hospital of Meharry Medical College, Nashville, where he served a residency; member of the city planning commission; on the staff of the Knoxville General Hospital; died July 27, aged 40, of acute myocardial infarction.

Coffee, Henry Daniel ✙ Columbia, S. C.; Atlanta School of Medicine, Ga., 1909; served during World War I; for many years associated with the Veterans Administration; died in the Veterans Administration Hospital July 18, aged 68, of ruptured aortic aneurysm.

David, James Carleton ✙ San Jose, Calif.; Northwestern University Medical School, Chicago, 1950; interned at the Highland-Alameda County Hospital in Oakland, where he served a residency; died May 21, aged 44.

Evans, Morris, San Francisco; Cooper Medical College, San Francisco, 1903; died in Millbrae, Calif., Aug. 14, aged 81.

Garnier, Anna M., New York City; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; for many years physician and surgeon for the American Manufacturing Company at its Greenpoint plant in Brooklyn; died Aug. 9, aged 85.

Goodloe, Aareiel Ellis, Chattanooga, Tenn.; University of the South Medical Department, Sewanee, 1909; served during World War I; died Aug. 2, aged 69.

Havel, Harold William, Ingleside, Neb.; Creighton University School of Medicine, Omaha, 1933; died July 17, aged 45.

✙ Indicates Member of the American Medical Association.

Isaacs, George W., Faucett, Mo.; St. Louis College of Physicians and Surgeons, 1893; died in the Missouri Methodist Hospital, St. Joseph, June 11, aged 84, of arteriosclerosis.

Johnson, Frank Bruce ✙ Lincoln, Neb.; Keokuk (Iowa) Medical College, 1894; died in Kearney July 23, aged 90.

Johnson, Hubert Hatch ✙ Royal Oak, Mich.; Detroit College of Medicine, 1905; also a graduate in pharmacy; at one time health officer of Ypsilanti, Mich.; served on the staff of the Highland Park (Mich.) General Hospital; died in Wy-Curt Hospital Aug. 3, aged 83, of acute pyelonephritis.

Kacso, Ladislaus ✙ Westlake, Ohio; Magyar Királyi Pázmány Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest, Hungary, 1920; died June 7, aged 63.

Ladas, Harilaos Elia ✙ Mobile, Ala.; National University of Athens School of Medicine, Greece, 1915; on the attending staff, Mobile Infirmary and Providence Hospital; died July 3, aged 65, of chronic glomerulonephritis.

Leviton, Nathan David, Chicago; Northwestern University Medical School, Chicago, 1911; died Aug. 16, aged 70.

Lowry, Henry Lawrence ✙ Tindall, Mo.; Barnes Medical College, St. Louis, 1904; died in Trenton May 5, aged 86, of arteriosclerosis.

Maercklein, Ivan Rudolph, Minot, N. D.; Milwaukee Medical College, 1903; died in the Veterans Administration Hospital in Long Beach, Calif., April 27, aged 74, of cancer.

Owsley, Robert Wright ✙ San Marino, Calif.; Indiana University School of Medicine, Indianapolis, 1934; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; served during World War II; past-president of the Arcadia Community Chest and Lions Club of Arcadia; on the staff of the St. Luke Hospital in Pasadena; died in Stanford-Lane Hospital, San Francisco, Aug. 15, aged 43, of coronary occlusion.

Place, Philip Wilfred, South Lincoln, Mass.; Tufts College Medical School, Boston, 1909; served in France during World War I; for many years physician with the Grenfell Mission in Labrador; died in the Emerson Hospital in Concord July 30, aged 72.

Reagan, Charles Harold, Grundy, Va.; Northwestern University Medical School, Chicago, 1930; died July 3, aged 55, of acute coronary occlusion.

Reedy, Walter Marion, Dunmore, Pa.; Jefferson Medical College of Philadelphia, 1892; served on the staffs of the State and Mercy hospitals in Scranton; died June 8, aged 85, of carcinoma of the prostate.

Sanders, Samuel Robert ✙ Moulton, Ala.; Birmingham Medical College, 1908; died June 17, aged 83, of cerebral hemorrhage.

Tate, Wendell Maurice ✙ Peabody, Kan.; University of Kansas School of Medicine, Kansas City, 1933; member of the American Academy of General Practice; interned at the Halstead (Kan.) Hospital; on the staff of the Axtell Christian Hospital in Newton, where he died July 12, aged 49, of coronary occlusion.

Trader, Charles Bell ✙ Sedalia, Mo.; Kansas City (Mo.) Medical College, 1901; died in the Bothwell Hospital July 21, aged 85, of heart block and nephritis.

Vandeman, Adelbert N., Spring Valley, Ohio; Starling-Ohio Medical College, Columbus, 1909; served during World War I; member of the Ohio State Medical Association; died Aug. 5, aged 76, of complications due to burns.

Williams, Louis A., Denver; University of Colorado School of Medicine, Denver, 1912; died in St. Anthony's Hospital July 24, aged 66, of cerebral vascular accident.

Wynkoop, James Cartright ✙ Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1892; died Aug. 3, aged 87.

V 1
195

FOREIGN LETTERS

AUSTRIA

Colectomy for Constipation.—At the meeting of the Society of Physicians in Vienna on June 24, Dr. R. Oppolzer reported on a woman, aged 30, who underwent appendectomy in 1942. Eight years later she began to complain of retention of feces of 14 days' duration, skin rash, folliculitis, and headache. Despite the use of laxatives and enemas, her bowels moved only once every 8 to 10 days. In 1951 she went for 16 days without a bowel movement despite enemas and laxatives. In 1952 she was admitted to the polyclinic where a hemicolectomy on the left side, including the left flexure and an anastomosis between the transverse colon and the sigmoid, was performed. Clinical improvement was noted, but bowel movements occurred only every second or third day and after laxatives. The condition of the patient remained bearable for two years; then she had severe headache and constipation increased again. In 1954 she had a retention of feces for 18 days despite repeated enemas, administration of neostigmine, paravertebral block, administration of acetylcholine, carbachol (Doryl), and posterior pituitary injection. On x-ray examination, the barium's position in the transverse colon remained unchanged for several days, although the anastomosis was free and wide.

Cure of constipation resulted from total colectomy with anastomosis between the ileum and the pelvic rectum, which was performed in September, 1954. Following operation the patient had daily bowel movements, but her headache continued for about four weeks, although an objective cause for it could not be discovered. Only phenolization of the carotid arteries on both sides by injections of 5% isophenol solution caused the prompt disappearance of the headache. The patient had been completely free from complaints for nine months when last seen. The microscopic examination of the colon revealed proliferation of the myenteric plexus. No narrowed portions and no changes in the submucosal plexus were observed.

At the same meeting, H. Finsterer said surgical treatment is indicated to relieve constipation only after internal treatment has failed. The type of surgical treatment depends on the cause of the constipation. In patients with megacolon or spasm of the descending colon and sigmoid, left-sided hemicolectomy with side-to-end anastomosis between the mobilized descending colon and rectum may be sufficient. Total removal of the pelvic colon may be necessary to prevent recurrence of the constipation, which was cured permanently in one patient only after resection of the spastically contracted colon. Total colectomy is preferably performed in two stages (first a left hemicolectomy, and, if constipation continues, extirpation of the right colon with ileorectostomy). Of the patients operated on recently, one patient is completely free from complaints and has normal bowel movements, but another complains of diarrhea. Constipation may cause the same symptoms as a gastric ulcer, and the apparent gastric disturbance may disappear permanently only after colectomy.

A woman, aged 56, who had been suffering from constipation since her childhood and who recently complained of stomach pains was admitted for an operation on her stomach. The speaker recommended colectomy, but the patient asked for gastrectomy because her husband, who had had a gastrectomy for an ulcer, had made a complete recovery and no longer was constipated. In December, 1924, the patient had a gastrectomy (Billroth I). The postoperative course was satisfactory at first but, because of shrinking of the anastomosis, stenotic vomiting occurred. A second operation was performed on April 27, 1925 (posterior gastroenterostomy and cholecystectomy). After this operation the patient no longer vomited but the pain persisted. She was then treated by internists for a peptic jejunal ulcer. This treatment was ineffective, and she requested another operation on the stomach and threatened to commit suicide. She was operated on for the third time on Oct. 26, 1925. No ulcer was found in the stomach, but duplication of the colon on the splenic flexure and spasm of the descending colon and of the sigmoid were observed. Consequently, hemicolectomy was performed on the left side and the stomach was not disturbed. The patient made a complete recovery. She was seen in January, 1939, at which time she had no complaints, had normal bowel movements daily, and had gained 55 lb. (24.9 kg.). This patient could have been spared the operation on the stomach if she had submitted at once to the colectomy.

Wolff-Parkinson-White Syndrome.—At the same meeting, Dr. H. Dittrich reported on a man, aged 52 years, who was admitted to the medical department of the Hanusch Hospital for homologous serum hepatitis. In the course of the routine examinations an electrocardiogram was taken that showed the pattern of the Wolff-Parkinson-White syndrome. Repeated electrocardiograms made alternately with two different types of apparatus (one with direct recording and the other with photographic recording) showed that the altering of the electrocardiographic tracings could be reproduced only by the direct recorder. The cause of this surprising observation was that the patient had to walk to this apparatus, while the recordings with the other type of apparatus were made with the patient in bed.

DENMARK

Changes in the Causes of Death.—Frandsen and Hamtoft in *Ugeskrift for læger* for July 28, 1955, present tables that bring out some curious facts concerning the causes of death and disease from year to year. Between 1921 and 1954 deaths from suicide, cancer, heart disease, and vascular diseases of the central nervous system have grown enormously in number, while deaths from tuberculosis and other infectious diseases have become comparatively rare. Of every 100 deaths in 1954, 7 were violent, as compared with only 3 in 1921. Between these two years deaths from cancer have risen from 12 to 21 per 100; deaths from heart disease from 10 to 27; and deaths from vascular diseases of the central nervous system from 5 to 13. Only 1% of all the deaths in 1954 could be traced to tuberculosis, whereas 9% were due to this cause in 1921. Under the age of 25, from one-half to one-third of all the violent deaths in 1954 were due to traffic accidents, but, between the ages of 25 and 65, suicides among men constituted about half of all the violent deaths. For women of this age, the preponderance of suicide as a cause of violent death was even more marked. Between 1945 and 1953 there was a sharp rise in the number of patients treated in hospitals for digestive, circulatory, and gynecologic diseases. Diseases of the nervous system, tumors, and trauma also showed a marked rise. On the other hand, the number of patients with skin and infectious disease, including venereal disease, fell from 175 per 1,000 in 1945 to 70 per 1,000 in 1953. The average number of days spent in hospital by patients with medical ailments in 1953 was 22 days per patient, compared with only 15 for patients with surgical diseases. This average was 73 days for patients suffering from tuberculosis.

Acetazoleamide for Cardiac Edema.—Dr. Ib. Persson has treated 26 patients between the ages of 29 and 88 suffering from cardiac edema associated with arteriosclerosis. In addition to rest in bed, digitalis, and a salt-poor diet, they were given acetazoleamide and some mercurial diuretic alternately. Two tablets (each 250 mg.) of acetazoleamide were given three times a day, and in a few cases three such tablets were given three times a day over a short period. No serious ill-effects apart from slight lassitude in a few patients followed the administration of the new drug, but its action as a diuretic appeared to be somewhat weaker than that of a mercurial diuretic. Because mercurial diuretics may be poorly tolerated by some patients, acetazoleamide may prove a useful alternative. There are also some patients in whom a mercurial diuretic fails to eliminate the edema,

The items in these letters are contributed by regular correspondents in the various foreign countries.

and in such patients alternate treatment with these two diuretics may be effective. Furthermore acetazoleamide may be given orally, hence the patient may take it at home (*Nordisk medicin* for May 12, 1955).

Poliomyelitis Vaccination.—Effective July 1, 1955, poliomyelitis vaccination was limited to children of school and preschool age. The vaccine is issued by the State Serum Institute in Copenhagen, and vaccination could be undertaken by any fully qualified physician. For this the physician is paid by the state four Danish crowns for each of the three injections given. There is no cost to the person vaccinated. The vaccinating physician is required to fill in a special form to serve as a certificate of vaccination, and, because the amount of vaccine available is limited, vaccinators are requested to send in their reports as promptly as possible. The vaccine is given intracutaneously. If the vaccine is given subcutaneously by mistake it will do no harm but is likely to do little good. The interval between the first and second injection is four weeks and between the second and third injection about 12 months. Each intracutaneous injection on the forearm should give rise to a well-defined, circular, anemic papule, with a diameter of 7 to 9 mm. In permitting any fully qualified physician to administer poliomyelitis vaccine, the Danish public health authorities have once again affirmed their policy of giving the general practitioner as much responsibility as possible with regard to public health measures.

Training of Specialists.—The Danish physician who wishes to qualify as a specialist attaches himself to certain hospitals of high standing and serves them for a prescribed period. He is not required to pass a formal examination. In 1920 only 15% of the medical profession in Denmark were recognized specialists, but by 1954 the percentage was 30. In recent years there has been a splitting up of the specialties for, while in 1930 there were only 15 different subjects in which a physician could specialize, this number had risen to 21 in 1954. Dr. Mogens Fog in *Ugeskrift for læger* discusses the pros and cons of the current system. He pays tribute to the high standards of his compatriots but warns against the loopholes for slipshod work by would-be specialists, some of whom suffer from a lack of systematic organization of their studies. At present the prospective specialist can master the technical side of his work without acquiring the perspective conferred by a scientific and biological approach. For want of such a background he may not be fully qualified to follow the evolution of his specialty. Without imposing formal examinations, as is the practice in the United States, the situation may be improved by providing lectures and organizing small study groups to review recent advances in the basic sciences.

Danish Cancer Register.—The *Danish Medical Bulletin* for July, 1955, has an account of the work of the Danish Cancer Register by its chief Johannes Clemmesen, who explains how closely his net is woven for catching every case of cancer. When the Register was opened in 1942, its principal tasks were defined as the provision of (1) reliable morbidity statistics with a view to the accurate estimate of therapeutic results, (2) an accurate estimate of differences in incidence of cancerous diseases at various times and in various areas, occupations, and other categories, and (3) statistics on individual patients for the use of physicians as well as for the study of multiple cancers and coincidence with other diseases. Cancer not being a reportable disease in Denmark, the aid of hospital services and individual physicians was sought to discover every case. The hospitals agreed to report patients with malignant disease to the Register at a token fee of 1 Danish crown for each case. In 1943 these reports cost about 9,000 of the total of 32,000 crowns spent by the Register in this year. In 1953 the cost of these reports had risen to 18,000 and the total cost to 95,000 crowns. The clerical staff originally numbered only two, but by January, 1955, it had expanded to one part-time and five full-time members. The filing card system in use during the early life of the Register has now been replaced by the full use of a mechanical tabulation system. Clemmesen insists that it would be fatal to consider cancer registers as merely institutes for the collection of statistical material. He believes that cancer registers will fail to fulfill their tasks if they are not put into a position to supplement the regional mapping out of cases of cancer by the collection of additional information related to particular problems. In recent years cancer registers have been developed in a number of countries following different systems, but the issue of success or failure may not in some cases lie entirely within themselves. In many cases their sponsors have sought their justification in the procurement of therapeutic statistics, hoping that endemiological studies could thrive alongside the former. It is, however, feared that therapeutic statistics with their careful studies of relatively small differences in percentage of cures may outgrow the germs of endemiological research and not least in places where the leadership is not in the hands of medical men familiar with the problems of malignant diseases.

Blood Transfusion Problems.—The donors of the blood bank of the Bispebjerg Hospital in Copenhagen are largely recruited from Copenhagen, and they consist chiefly of persons paying their debt of blood for relatives benefiting from blood transfusion in this hospital. Kryger and Schaebel in *Ugeskrift for læger* for July 21, 1955, tabulate the 498 mishaps observed in the course of about 25,000 transfusions. Although none of the mishaps were fatal, several were alarming. Three cases of severe hemolytic reaction reflected mistakes in technique that might have been avoided. A comparatively mild hemolytic reaction may be indicated by shivering and a rise of temperature. This may be the only clinical sign of such a reaction, but it should be taken as a warning of more trouble on the resumption of a transfusion. Among the 107 patients with an allergic reaction such as urticaria (96 cases) or asthma, 3 had severe shock that might well have proved fatal had not epinephrine been given intravenously. A febrile reaction was recorded in 284 patients, and diverse other reactions, such as pain in the loins, in 104 cases. Citrate reactions and speed reactions are not included in this study as the blood bank was not examined in respect to them. A comparison of the findings of this study with those of earlier studies published abroad shows that the frequency of hemolytic reactions is lower in Denmark than elsewhere. This difference may indicate that the population of Denmark has received less artificial immunization than that of other countries. If so, there may in the near futre be a rise in the frequency of blood transfusion complications due to the increase in immunization of the population.

National Diabetes Association.—In a report for 1954, the National Diabetes Association referred to the opening of the Skaerven summer colony for diabetic children as the outstanding event of 1954; 118 such children were given a three week outing in 1954. The association also runs the only convalescent home for diabetics in Denmark, with 24 beds available the year around. Another center in Copenhagen provides a home for diabetic children between the ages of 2 and 14 whose own homes cannot give them the special care necessary for diabetics.

International Congress of Surgery.—For the first time in its history, the International Congress of Surgery was held in a Scandanavian country. More than 1,000 surgeons from 42 different countries, including Russia, met in Copenhagen in July. *Nordisk medicin* for July 21, 1955, celebrated the occasion with a series of articles in English on surgery in Denmark, Finland, Norway, and Sweden.

ENGLAND

Effects of Anesthesia on the Brain.—The brain is extremely vulnerable to short periods of vascular insufficiency or anoxia. Dr. P. D. Bedford has investigated the mental condition of 251 persons over the age of 65 after operations performed under general anesthesia (*Lancet* **2**:259, 1955). In 120, or 48%, there was some evidence of mental impairment, and 29 of these, or 12% of the total, were suffering from severe dementia that was not present before and that would not normally have been associated with the operation. Eighteen of the patients showed extreme dementia. Typically, anesthesia comprised preoperative medication with 20 mg. of Pantopon, or 10 to 15 mg. of morphine, and 0.4 mg. of hyoscine, or 0.65 mg. of atropine, followed by induction with thiopental used intravenously, and continuation with nitrous oxide and oxygen, or ether and oxygen, or trichloroethylene and oxygen. For abdominal operations a

muscle relaxant was often given. Histological examination of the brains of those who died was not very helpful, as it was difficult to distinguish the degenerative changes of old age from those of anoxia.

Dr. Bedford does not directly incriminate the anesthetic agents and drugs used as the cause of these catastrophes, because not all the older people were affected. There must be an individual susceptibility to one or more of the factors concerned in operation with the patient under general anesthesia that determines the occurrence of brain damage. This susceptibility is unpredictable and fortunately rare. Operations on older people should only be performed when absolutely necessary. Premedication and postoperative medication should not be given routinely. Narcotics and potent analgesics are known to affect the central nervous system and should be given only when indicated. Less potent drugs should be used whenever possible. Blood pressure, hemoglobin, and oxygenation should be kept at optimum levels in operations, and "hypotensive surgery" should be absolutely forbidden in the elderly. Dr. Bedford makes a plea for the careful anticipation, prevention, and treatment of the complications of operations performed with the patient under general anesthesia, such as dehydration, mineral depletion, vitamin deficiency, pneumonia, postoperative toxemia, and fever. When postoperative confusion occurs in older people, its cause and the reason for its precipitation should be sought.

Dr. Bourne of St. Thomas' Hospital has also pointed out that nitrous oxide anesthesia can cause grave effects in the young as well as the old (*Lancet* **2**:295, 1955). Between 4,000 and 5,000 dentists in the United Kingdom have known patients of all ages, including young children, to remain in coma after the administration of nitrous oxide. He has followed up 70 such patients, and 2 of these suffered cerebral damage after receiving nitrous oxide for dental extraction.

Health in the Services.—A report on the health of the Army (Report on the Health of the Army, W. O. Code No. 11055, 1954) indicates that medical discharges in the Army for psychiatric disorders were 4.1 men per 1,000 strength; in the women's services the figure was 15 per 1,000. Discharges for all other diseases were 9.1 men per 1,000, and in this group tuberculosis was highest with 1.2 per 1,000 followed by peptic ulcer with 1.1 per 1,000. Discharges of Army recruits during processing show a similar pattern. Total discharges were 8.75 per 1,000 intake, nearly one-half of which were for psychiatric disorders. There was a high incidence of appendicitis and peptic ulcer, both of which have been increasing. The incidence of appendicitis among women in the Army was three times as great as among men, although peptic ulcer was less common among the women. Sickness rate in the Army, as measured by admissions to hospital and other medical units, was 274 per 1,000 over a period of two years. The principal causes of admission were tonsillitis, pharyngitis, and skin conditions. The common cold was low on the list. In the British Army in Germany skin conditions were the commonest cause of admission. Venereal diseases accounted for 5.5. per 1,000 strength among the hospital admissions in the United Kingdom,15.3 in the British Army on the Rhine, and 13.4 in the Middle East. The highest incidence occurred in the Korean war zone.

The Air Force findings (Report on the Health of the Royal Air Force, By Command of the Air Council, A. P. 3319/51) were slightly different. Discharge for psychiatric reasons was highest, as in the Army, but was 21% of the total. Next came diseases of the ear and mastoid (21%) and then all forms of tuberculosis (11.6%). In the Women's Royal Air Force 43% of total disability discharges were for psychiatric reasons. The incidence of tuberculosis was similar to that for men (12%). Among the men 703 contracted scarlet fever and 839 streptococcic sore throat. Most of these were returned to duty. The incidence of poliomyelitis declined in the R. A. F. but not in the Army and that of chicken pox and measles went up. There was a striking increase in scarlet fever from 0.71 to 2.76 per 1,000 strength and in rubella from 1.91 to 3.70. The incidence of diphtheria was low everywhere, and that of typhoid was negligible except in the Middle East. Before the war the disability discharge rate was 5.6 per 1,000 in the Air Force, but then all personnel were volunteers. The National Service Act has changed the health and age pattern of the forces. The average number of days' sickness has improved compared with prewar records, and the death rate (2.2 per 1,000) is just over half what it was before the war.

Health Center for Old People.—Three years ago the public health department of Rutherglen, a suburb of Glasgow, started a welfare service for old people to maintain them in a sound state of physical, mental, and social well-being. To do this it was necessary to provide clinical facilities for assessment at the premises of the local authority, cooperate with the statutory and voluntary services for old people, extend the health visitor's work, and set up a chiropody service. The aim of the center was to promote health rather than cure disease, compile a register of old people, search for early cases of disease, integrate treatment with social environment, and conduct research into the aging process. A health officer sees new patients, interviews any old patient returning for guidance, and carries out general clinical and medicosocial assessments. He arranges for radiological examinations and discusses each patient's problems over a cup of tea. A consultant physician holds a weekly clinic, examines in detail the patients sent by the health officer, and arranges for the necessary diagnostic or laboratory tests. Close contact is maintained between the center and the patient's general practitioner. Visiting nurses attend the clinic to learn of the problems of old age, and voluntary workers teach the old people occupational therapy. Physiotherapists and a chiropodist employed by the local authority attend the clinic. When further investigation is thought necessary, the patient is admitted to a hospital, certain wards of which are devoted to the care and treatment of the old. In two years 500 ambulant old people attended the clinic; 352 of these suffered from some disability. Pain, weakness, dyspnea on exertion, and giddiness were common complaints and were experienced by 89% of the patients. The systolic pressure was over 170 mm. Hg in 313 patients, and in 85 the hypertension was asymptomatic. The hemoglobin level was 80% or more in 395 of the patients, and in only 9 was it less than 60%. Medical and surgical treatment was given where necessary. The mental health was also investigated. About 125 were unhappy, and attempts were made to improve their morale by various means. Physiotherapy and the occupational therapist contributed much to this improvement. Unhappiness was commonest in those who lived alone; indeed, many were virtually socially isolated. It is pointed out that if child welfare clinics are still necessary, then the need for health centers for old people is even more necessary, because their age group has been left behind in the general advance of the public health services.

Congress of Obstetrics and Gynecology.—At the 14th British Congress of Obstetrics and Gynecology, held at Oxford in July, Dr. A. Walker of London said that in Britain about 60% of confinements for childbirth were in hospitals and that 80% in and out of hospitals were managed by midwives. Less than 10% of general practitioners who practice obstetrics care for as many as 20 cases a year. Over half undertake antenatal care only and rarely see a baby born, and, of those on call for the delivery of a baby, only about 20% attend the confinement. Conditions are different in rural areas. A smaller body of physicians practicing obstetrics as specialists is needed, handling enough cases to retain their interest and skill. These specially trained physicians could hold permanent part-time hospital posts under the supervision of consultants. Dr. Walker considered that midwives should have status and responsibility—particularly as 80% of babies are delivered by midwives in Britain—and that they should be the ones to manage normal labor. He thought the present system in Britain was sound and that it would be a waste of medical manpower to replace the midwife. There are already too many practitioners competing for too little obstetric work.

Dr. G. F. Abercrombie of London, speaking as a family practitioner who had delivered 768 babies, favored hospital delivery for the primagravida because of the high rate of operative procedures needed in delivery. The general practitioner-obstetrician should be competent in external version, breech delivery, surgical induction of labor, manual rotation of the head, forceps extraction, manual removal of the placenta, and the repair of lacerations. Even so, some 5% of women in labor need attention that can only be given in a hospital, such as a cesarean

section or blood transfusion. The physician should give the patient an understanding of the physiology of pregnancy and labor before the event. Most multigravidas can be delivered at home, but every primagravida undergoes what is in effect a trial labor. She should therefore be delivered in a hospital with all facilities provided, after which she could return home early so that the specialist-practitioner could care for her. The speaker deplored the fact that in London general practitioners did not have access to hospital obstetric units. Prof. A. M. Claye of Leeds said that domiciliary obstetrics should be a thing of the past. All patients should be hospitalized, as it is impossible to forecast a normal delivery.

Admission of Preschool Children to Hospitals.—A joint committee of the Institute of Child Health, the Society of Medical Officers of Health, and the Population Investigation Committee, has been investigating the admission of preschool children to hospitals. Their report states that the annual admission rate of children from one month up to 5 years of age is 53 per 1,000. Nearly half remained in the hospital for one week or less, and a third stayed longer than a fortnight. The main causes of admission in the first year of life were congenital malformations, digestive diseases, and respiratory infections. By the age of 2 years tonsillectomy accounted for a quarter of the admissions and bacterial infections for 10%. More boys than girls were admitted at all ages, mainly on account of congenital malformations, digestive diseases, circumcision, and accidents. Children from homes in the lower income group had a higher rate of admission for infections than did those from homes of the professional classes and white-collar workers. There were no marked social differences in other disorders, except for a small group of unskilled manual workers' children who had a high rate of admission for all causes, except tonsillectomy The greater incidence of infections among manual workers' children was attributed to the prevalence of large families and overcrowding in such social groups and the consequent greater risk of infection. One third of all the children were admitted to wards or hospitals that allowed no visiting, not even by parents. This ruling is now relaxed in most, if not all, hospitals. In 1953 the Central Health Services Council advocated the daily visiting of children in hospitals by their parents, and the Ministry of Health sent out a directive urging this, provided there were adequate safeguards against the spread of infection. Apparently, Scottish hospitals have always been more lenient in allowing visitors to children's wards. Correspondence in the national press reveals that there is still much public uneasiness over the attitude of some hospitals that do not permit the frequent visiting of children by their parents. The Hospital for Sick Children, Great Ormond Street, one of the best known children's hospitals in the country, strongly favors the visiting of sick children by their mothers between 5 and 6 p. m., so that they can help the nursing staff at the children's bedtime.

Death of Lord Horder.—Lord Thomas Jeeves Horder, physician to five English monarchs, died on Aug. 13 of a heart attack. He was born in Shaftesbury in 1871. His scientific and medical education was received at the University of London and St. Bartholomew's (Bart's) Hospital. He supplemented his formal studies in biology by a correspondence course in which his papers were marked by H. G. Wells. After obtaining his M.D. degree he soon established himself on Harley Street and was appointed to the visiting staff of Bart's Hospital, where he became the senior consultant. Early in his career he was called in to attend King Edward VII, and this began his connection with the English royal family. The Duke of Windsor, when he was Edward VIII, made Lord Horder his physician, and he was the extra physician to King George V, George VI, and to the Queen. He was knighted in 1918, made a baronet in 1923, and raised to the peerage in 1933. He was made a Knight Commander of the Victorian Order and eventually a Grand Commander. He was one of the last of a generation of clinicians reared in the school of experience without laboratory or diagnostic aids. His reputation was based on his brilliance as a diagnostician and on his understanding of patients, who included politicians, prize fighters, and Barbara Hutton. He was chairman of the Cremation Society, Anti-Noise League, Empire Rheumatism Council, and British Empire Cancer Campaign. During World War II he was a consulting physician to the War Office, Ministry of Food, and Ministry of Pensions. Lord Horder was a determined opponent of the National Health Service, as originally outlined by Mr. Aneurin Bevan and the socialist government. Throughout the protracted negotiations between the Ministry of Health and the medical profession he succeeded in obtaining numerous concessions. As chairman of the Fellowship for Freedom in Medicine he carried on the battle against the politicians and spoke and wrote right up to the end against the National Health Service, which he maintained lowered the professional standards of medicine.

Health Services in Scotland.—The health services in Scotland and the care of the aged sick were debated in the House of Commons on July 19. Mr. Willis, a member for Edinburgh, said that of 5,000 old people examined, 40% were in need of care and attention. If this number represents a true cross section of the population, about 200,000 old persons are in need of nursing care, hospital treatment, therapy, or rehabilitation. Of the 990 in the survey living alone, 537 or 10% of the total are bedridden or unable to fend for themselves. Mr. Thomas Oswald, another Edinburgh member, said that 25% of the old people in this survey were in need of medical attention, and this need was not being met. A further 25% require home or domestic help, and 10% needed physiotherapy, which they are not receiving. About 12% need institutional care, and, for this, 152 are on waiting lists. In reply the Secretary of State for Scotland said that more beds were being set aside for the aged and that special units were being set up in Dundee and Glasgow. A special training school for nurses is to be opened in Glasgow. Visiting nurses, too, are being called on to give advice to the elderly sick, and practically all local authorities are providing a service of domestic helps. The hospital building program is being put into effect. It was noted that the death rate from tuberculosis had fallen from 23 per 100,000 in 1953 to 20 last year. Even so, over 7,000 cases were reported in 1954. The average stay in hospital has been reduced, largely due to the use of new chemotherapeutic drugs, and more patients are now cared for without entering the hospital. For the whole of Scotland there are still just under 500 patients with tuberculosis waiting for admission to a hospital. When compared with the figure of 9,000 admissions annually, this does not seem large.

Energy Requirements of Miners and Sedentary Workers.—A continuous record was made of the nature and duration of every activity, both at work and at home, of 19 miners and 10 clerks at Buckhaven, Scotland (Special Report Series, Medical Research Council, No. 289, London, Her Majesty's Stationery Office, 1955). This was done by noting their food intake and oxygen consumption, as measured by the Kofranyi-Michaelis respirometer, an instrument devised by workers at the Max Planck Institut fur Arbeitsphysiologie at Dortmund, Germany. The miners expended an average of 3,660 calories a day and the clerks 2,800. The difference was due to the energy expended at work (1,750 and 890 calories a day respectively). The two groups used the same number of calories on their spare-time activities. The proportions of calories derived from protein, fat, and carbohydrate were about the same in the two groups. The miners did not get their extra calories from carbohydrates alone. Contrary to what was expected, the miners spent 38% of their working time sitting about. The metabolic cost of the various mining activities was 7 calories per minute, but the mean rate of energy expenditure during the entire time spent on the underground shift was only 4.3 calories per minute. None of the miners had energetic recreations. Taking the week as a whole both at work and at home, the miners spent two-thirds of their total time and more than one-third of their total energy lying down or sitting up. A similar finding is reported for Army cadets by McCance and Widdowson of Cambridge. Alleged to be spending lives of tremendous activity, they spent nine and one-half hours a day sitting and eight and one-half hours in bed.

Wrong Hospital.—The *Lancet* of July 30 describes the case of a small boy who suffered an injury to his eye and was sent away from the eye hospital to which he was taken because it was an extraocular injury, from the accident hospital because there was no fracture, and from the infirmary because he was a child. He was then taken to the children's hospital, from which he was

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195

sent to the plastic surgery unit at the regional hospital. This extreme specialism of hospitals, whereby the patient in urgent need of attention is given the run-around, is deplored. The lay press has also reported many instances of the ill being sent from one hospital receiving room to another before being admitted. When such a patient dies soon after admission, even though this outcome is not connected with the transfer from one hospital to another, the two are often connected in the public mind. The *Lancet* contrasts the case of the boy with that of an elderly man far from home on a motor tour who was suddenly afflicted with acute urinary retention. Rather than be admitted to a strange hospital he traveled home in easy stages and stopped to obtain relief whenever he saw a hospital. He progressed from catheter to catheter until he reached his home town and the physician of his choice. During his journey he stopped at cottage hospitals, city infirmaries, a maternity hospital, and a mental hospital. At all, his distress was relieved. The *Lancet* comments that at all these hospitals the physicians, surgeons, general practitioners, obstetricians, and psychiatrists were all doctors first and specialists second and were not so highly specialized that they had forgotten how to pass a catheter.

Structure of Vitamin B_{12} Elucidated.—At the annual meeting of the Chemical Society at Exeter in July, Sir Alexander Todd of Cambridge University announced that the structure of vitamin B_{12} had been elucidated as a result of collaborative work with the Glaxo Laboratories at Greenford in Middlesex, Dr. D. M. Hodgkin of Oxford, and workers at the University of California. Further alkaline hydrolysis of cobalt-containing acid hydrolysis products by the Cambridge workers resulted in the isolation of a hexacarboxylic acid. Dr. Hodgkin described the results of x-ray crystallographic analysis of this at the third International Congress of Biochemistry at Brussels in August. Coupling this with the observation that acid hydrolysis of vitamin B_{12} yielded the phosphate of 5:6 dimethylbenziminazole ribofuranoside, Sir Alexander Todd considers that the vitamin is the nucleotide of a complex containing four pyrrole rings, the nitrogen atoms of which are coordinated with a cobalt atom. He acknowledges the parallel research going on in the Merck Laboratories in New Jersey. Their workers have isolated degradation products, which permitted the inclusion of several more atoms in the four pyrrole-ring structure. They have been submitted to x-ray crystallographic analysis by Dr. Hodgkin. Experiments on the synthesis of vitamin B_{12} have been started at Cambridge. A synthesis would be of academic interest only, as it could not compete with the present method of manufacture by which vitamin B_{12} is made as a by-product in the manufacture of streptomycin.

Separation of Children from Their Parents.—In recent years much interest has been focused on the connection between the separation of child and parents and the subsequent development of delinquency and emotional disturbances in the child. An investigation was carried out by Howells and Layng to test the validity of this association (*Lancet* **2**:285, 1955). Two groups of children were examined—a random group of disturbed children who were attending a child psychiatric clinic, and a control group of mentally healthy school children. The parent was asked for details on each occasion that separation between child and parent had occurred before the child's fifth birthday. Sex distribution, average age, the pattern of separation experiences, and the low incidence of separation were about the same in the two groups. The observations did not bear out the generally accepted view that the early separation of child from its parents is responsible for later psychiatric disturbances. The findings supported the impression that mental ill health in children springs from processes arising from being with their parents rather than from being away from them. Children enduring adverse home environments may actually gain from separation from their parents. Although separation may cause suffering for the child, it does not, in most cases, lead to mental ill health. Some children enjoyed and benefited from separation. When separation from the mother is inevitable, emotional trauma can be reduced by using friends or relatives as mother substitutes.

Genetic Damage from Irradiation.—There is great alarm that nuclear explosions may produce undesirable genetic changes in man. The possible genetic dangers of the therapeutic and diagnostic use of roentgen rays have, however, been largely overlooked. For example, it has been stated that the irradiation of the ovaries for the treatment of amenorrhea may cause induced mutations affecting future generations. Stanford and Vance investigated the dose of roentgen rays received by the gonads from various diagnostic procedures (*Brit. J. Radiol.* **28**:266, 1955). The dose varied from 0.026 milliroentgens for radiographic examination of the forearm to 800 milliroentgens for lateral radiography of the lumbosacral joint. In men, for similar procedures, the dose received by the testes varied from 0.13 to 1,100 milliroentgens per exposure. The average gonadal dose per exposure is of the order of 35 milliroentgens for men and 65 milliroentgens for women. An estimate of the possible genetic effects can be calculated from these figures. If it is assumed that the background radiation over a generation is about 3 r, then an average of one diagnostic roentgenogram per person per generation would increase the mutation rate due to radiation—and the tendency to genetically determined deaths from this in later generations—by about 0.01 in men and 0.02 in women. These calculations are based on the assumption that the field area is reduced to a minimum when taking roentgenograms.

Unusual Epidemic.—An unusual epidemic in Carlisle, Cumberland, is described by Dr. Wallis in *Lancet* (**2**:290, 1955). Sporadic cases were first noted early this year, and a few are still appearing. The main features are conjunctivitis, which may be unilateral, fever up to 104 F, malaise, sore throat, dry cough, and enlarged cervical lymph glands. The acute phase lasts for a week to 10 days, and convalescence is marked by severe listlessness that persists for several weeks. Investigations were carried out on 60 patients. No abnormal total or differential leukocyte counts were obtained, nor were any abnormal cells discovered. The heterophil antibody test was consistently negative, as were routine complement-fixation tests against influenza viruses A and B, Q fever, psittacocis, venereal lymphogranuloma, and mumps V and S antigens. Some serums were tested and found negative for Toxoplasma infection. Bacteriological examination of throat and feces, when warranted by physical signs, revealed no abnormality. Throat washings, conjunctival swabs, and specimens of feces investigated at the Virus Reference Laboratories, Colindale, London, have been negative for antibodies against the "adenoidal-pharyngeal-conjunctival" or "acute respiratory disease" group of viruses. All ages and both sexes were affected. The incubation period was between five and 10 days. Laboratory investigations are still being carried out on new cases.

Amputation Due to Gas Gangrene.—Damages of $5,600 were awarded on July 29 to a woman, aged 39, whose arm had to be amputated after a fall following which gas gangrene developed. In addition, her husband was awarded $5,600 for the loss of her services owing to her disabilities. Both the patient and her husband sued the South-West Metropolitan Regional Hospital Board, the West Dorset Group Hospital Management Committee, and the physician concerned for negligence in treatment, which was denied by all parties. An unpadded plaster was applied to the arm, the radius and ulna of which were fractured; the broken fragments had caused a small puncture wound. Good practice demanded that a compound fracture, such as this was, should not be enclosed at once in an unpadded cast. Penicillin or some other antibiotic should also have been administered. Severe interference with the circulation of the blood resulted from the plaster being too tight. The arm began to swell, and it was claimed that the plaster should have been split, although this was not done. The arm finally had to be amputated. The judge did not blame the physician for not suspecting or diagnosing gas gangrene, but he said that the fitting of a close and unpadded plaster immediately after the reduction of the fracture interfered with circulation, creating a condition favoring infection.

Rockefeller Grants.—Grants from the Rockefeller Foundation for the second quarter of the year exceeded $5,600,000. In Britain and the Commonwealth the two major benefactions to medicine were a five year grant of $314,000 for the medical faculty of the University College of the West Indies, Jamaica, to help expand the research and teaching program based on the study of local diseases and health problems and $156,000 for laboratory facilities at Oxford for the new Regius Professor of

Medicine, Prof. G. W. Pickering. The costs of a sabbatical year at Oxford for an American professor of physiology were also paid, as were two grants to two British universities, one to support Prof. L. S. Penrose's research on human genetics and another to Queen's University, Belfast, to help Prof. G. W. A. Dick's investigations on viruses. The foundation has also announced a five year grant for the establishment of a nurse teaching unit at Edinburgh University, which would be the first of its kind to be formed within a British university. The court of Edinburgh University graciously accepted the gift, and a committee has been appointed to establish the unit, which would prepare teachers and administrators in the nursing profession, with the object of providing a regular supply of well-trained nurses.

Breast Feeding.—Hytten and Thomson (*Brit. M. J.* **2**:232, 1955) examine the incidence and duration of breast feeding in the Aberdeen area. In all parts of Great Britain the official policy is to promote breast feeding whenever possible, yet its success varies from one area to another. The incidence of successful breast feeding was defined as the proportion of babies wholly fed on the breast during the first three months of life. After three months mothers commonly introduce supplementary feedings, and it is difficult to know what contribution breast milk is making to the child's total food intake. The present study was based on records of 2,404 babies born in maternity hospitals, nursing homes, and private homes. At the age of three months 35.6% of the infants were wholly breast fed, and after six months 24.5% were still feeding from the breast, although most were receiving supplementary food at this time. After discharge from hospital the older mothers nursed their babies longer than did the younger ones. At three months only 25% of mothers aged 20 or less were still breast feeding, compared with 39% of women over 30. The incidence of breast feeding was higher after the second than after the first pregnancy and then declined with increasing parity. After breast feeding had been established its maintenance was largely determined by good maternal health and favorable social circumstances. There was a comparatively high incidence (45%) at three months in women whose babies were delivered at private nursing homes. Physical condition and living conditions were also factors. Of women graded as having good physique and health, 40% breast fed their babies for three months, compared with 31% of those graded fair and 23% of those graded poor. Where the housing conditions were such that there was one person per room, the incidence of breast feeding at three months was 42%. This fell to 28% when there were more than two persons per room. At four months the growing infant may require sufficient milk daily to supply 1,100 calories. This means that a moderately active mother who is lactating needs over 3,000 calories daily. Relatively few women have the appetite for this. It is also cheaper, as many poorer mothers have found, to feed the baby directly with dried cow's milk because the latter obtained through the National Health Service costs about one-tenth of that supplied through breast feeding. Thus breast feeding, once established, is most likely to be successfully maintained by healthy women who take and have the appetite for a sufficient diet, who can take the care of a baby in their stride, and who do not suffer from intercurrent morbidity. These circumstances are more common in the well-developed and educated women in the upper social groups.

Medical Liaison with Uganda.—A liaison between the pediatric services of Uganda and those of the Hospital for Sick Children, Great Ormond Street, London, has recently been inaugurated. A senior resident from the Hospital for Sick Children has been sent to Uganda for a two year period, to be followed in turn by further residents. In addition two nurses from the hospital volunteered to go out and take charge of the children's wards for a similar period. Each year one of the hospital specialists will pay a month's visit to Uganda. The purpose of the visit is to study the problems of tropical pediatrics, since many postgraduate students from tropical countries attend special courses at the Hospital for Sick Children, where their special problems are not always understood. It is also hoped that the visits will improve the care of the sick African child by introducing up-to-date methods. The scheme has been promoted with the financial assistance of the Colonial Office and the cooperation of Makerere College at Kampala. The experience obtained by the visiting physicians and nurses will widen their horizon and increase their responsibility. Disease in the tropics is often encountered in the raw and florid state not seen in British hospital practice.

Suicides.—In his report of 1954, Dr. D. H. Geffen, health officer for Hampstead, examines the causes of the high suicide rate in this suburb of London. In 1950 Hampstead had the highest suicide rate in the country—28.7 per 100,000 population. In the following years the rate fell, but it is still high. Dr. Geffen attributes this to the relatively high proportion of the population in the upper social groups and upper income levels. He also remarks that a high proportion of the population of Hampstead, as in other areas with a high suicide rate, live in lodgings, boarding houses, or rooms. Some of these people may be those who leave their own home towns and come to London in search of employment. Dr. Geffen says that, although it is popularly supposed that a person who threatens to commit suicide seldom does so, all such threats should be taken seriously, and the public should have less easy access to dangerous medicines in lethal quantities. Referring to fashions in methods of suicide, which he refers to as a mentally infectious disease, Dr. Geffen deplores the publicity given to such methods in the popular press.

Prefrontal Leukotomy and Legal Responsibility.—One of the risks of prefrontal leukotomy is that the patient's sense of responsibility and his social values may be reduced. This was in evidence during the trial of a man charged with stealing cigarettes at Bristol. The accused admitted stealing the cigarettes from his employers. The trial, however, was postponed pending a medical report, when it was learned that the man had become irresponsible after a prefrontal leukotomy four years previously. Before this he had been a good worker, with employment for 28 years in one position, but three months after he had left hospital he was discharged as unsatisfactory. He had since been divorced and had been frequently seen wandering about with no fixed address. In spite of the medical evidence, the man was fined $11.20 by the magistrates for stealing.

Illegal Accouchement.—According to Section 9 of the Midwives Act, 1951, it is an offense punishable by a fine of up to $28 for any person, male or female, to attend a woman in labor, unless this is done under the direction and personal supervision of a qualified medical practitioner. This does not apply to medical students or midwives, nor to cases where attention is given in emergency because of unavailability of a physician. This section of the Midwives Act was invoked in a case before the courts. A man claiming that he was a "natural healer" and a diet reformer was prosecuted on July 28 for attending his wife in childbirth and for delivering the baby himself. The man stated that it was the second child he had delivered. A fine of $8.40 was imposed.

ITALY

Morbidity in a Sanatorium.—According to Teriggia and Baroni in *Notiziario Sanitario* (**18**:2 [March 2] 1955), 39 cases of tuberculosis occurred among the personnel of the Sondalo Village Sanatorium over a seven year period and among an average of 1,250 persons in charge of the patients. The highest rate of tuberculous morbidity was observed in 1952 with 11.4 cases per thousand. During the first two years (1947 and 1948) no cases had been observed. The highest rate of morbidity (6.1 to 6.6 per 1,000) occurred in persons in their second to fourth year of seniority in the sanatorium. Most cases occurred in persons in the 24 to 30 year age group. The disease occurred in one physician and 10 nurses, with a rate of 6.2 per thousand, and in the male employees, with a rate of 5.5 per thousand. The above rates of morbidity are lower than those reported in similar sanatoriums in Italy and other countries.

PERU

Nutritional Guide for Mothers.—The enormous incidence of malnutrition among infants, especially of the poorer classes, constitutes one of the most pressing problems facing the Ministry of Public Health and Social Welfare. Although an energetic campaign to improve the situation has been carried on by the Central Organization of Social Assistance, a voluntary agency founded by Mrs. María Delgado de Odría, wife of the President of Peru, the results to date have been disappointing. The lack of education of most of the mothers has prevented their effective cooperation. For this reason, the nutrition department of the Ministry of Health has prepared a nutritional guide especially for mothers of the lower classes. In this project Dr. Martha Trulson of Harvard University has acted as a technical adviser. The peculiar feeding habits and the foods commonly used in each rural area have been considered, so that the mother, wherever she is, can feed her child in the best way possible according not only to her social and economic conditions but to the ecologic conditions of the place where she lives.

Society of Public Welfare.—At the meeting of the Society of Public Welfare of Lima in July, Dr. Oswaldo Hercelles reported that the budget of the institution for 1955 was about $3,295,522. In Peru most social welfare functions, including hospitalization of medically indigent, are still in the hands of voluntary welfare organizations, whose main support comes from lotteries and rentals. Although the total budget for 1955 is $195,125 higher than for 1954, the deficit is smaller, being $333,063 compared with $478,986 in 1954 and $760,295 in 1953. The welfare agencies support six hospitals, which have a total of 4,029 beds. In 1954, 68,741 patients were hospitalized, or 3,526 more than in 1953. The outpatient consultations have similarly increased from 426,248 in 1953 to 538,687 in 1954. The average cost of maintaining a patient in such hospitals is $1.20, which is much less than the cost per patient in the hospitals supported by the government. This discrepancy cannot be overcome unless larger amounts become available to the welfare agencies.

Treatment of Tuberculosis.—At the postgraduate course given at Arequipa in July, Prof. Orrego Puelma, speaking on the treatment of tuberculosis, said that isoniazid appears to favor cellular metaplasia through direct action on the connective tissue, and, although this may result in complete resorption or fibrosis, it may lead also to an increase in caseation. A combination of streptomycin and isoniazid affords the most reliable treatment, and aminosalicylic acid is recommended only for patients in the acute stages and in the treatment of tuberculous meningitis. Much better results were obtained in the treatment of tuberculous bronchitis by giving oxytetracycline with streptomycin than with streptomycin alone or in combination with any other known antituberculous agent. Large doses of vitamin C and the vitamin B complex constitute a valuable adjunct to treatment.

Hypertension.—At the same postgraduate course, Prof. Rojas Villegas said that a combination of pentolinium tartrate with Rauwolfia serpentina is the safest and most effective method of treating hypertension and that even malignant hypertension sometimes yields spectacularly to this therapy. The average daily dose of pentolinium tartrate used was 140 mg. and of reserpine, 8 mg.

Hospital Administration.—An inter-American seminar on hospital administration, organized under the auspices of the American Hospital Association and the Inter-American Hospital Association in collaboration with the most important Peruvian medical, social, and public welfare agencies, was held in Lima in July. The failure of the nonfederal hospitals to gain the approval of the Inter-American Hospital Association is primarily due to their lack of funds. Of about 16,000 beds available in all the hospitals of Lima, 4,027 are in these nonfederal hospitals. Although their support has increased in recent years, the care of the patient is still inadequate more often than not, and the clinical records are incomplete. This is particularly unfortunate in view of the fact that many of these are teaching hospitals. Although the standards in the federally supported hospitals are much higher, the Worker's Hospital of Lima is the only one that has gained the approval of the Inter-American Hospital Association.

Psychiatric Campaign.—At the Second Peruvian Psychiatric Journeys held in Trujillo in July, the general lack of psychiatric services outside of Lima was again deplored. Help from the government and private institutions has been almost nil, but it is hoped that the government will initiate an active program soon.

SWEDEN

Use and Abuse of Medical Certificates.—According to one of the statutes of the Swedish Medical Association, the physician who issues a medical certificate must confine himself to his own observations and must also safeguard his patient's interests. This ruling has acquired exceptional significance in the light of recent events connected with a movement by the police of Stockholm and Gothenburg for more pay. On the evening of June 22, the head of the police in Stockholm announced that about 250 policemen had declared themselves unfit for service on account of illness. Next morning the number of policemen in Stockholm on the sick list had risen to about 450, and by the evening of June 23 about 700 policemen, or practically all the policemen required for traffic regulation, had been reported as sick. The same malaise overtook about 100 policemen in Gothenburg. The Minister for Internal Affairs reacted by calling up policemen from other parts of Sweden and making arrangements for drafting them to Stockholm and Gothenburg. He remarked that neither of these towns had been struck by any great wave of illness involving other members of the community and that the higher officers in the police force and the members of its criminal service had been comparatively exempt from illness. For these and other reasons he suspected that the sudden crop of medical certificates of ill health was the outcome of an organized action directed against an important function of the community. Because such action could not be tolerated, he appointed a commission of inquiry composed of three members, one of whom was a high-ranking physician attached to the Sabbatsberg Hospital in Stockholm. In *Svenska läkartidningen* for July 8, it was pointed out that between June 18 and 27 a total of 448 policemen in Stockholm were certified by 92 physicians as suffering from some illness or other. It was also remarked guardedly that it was impossible to say to what extent these physicians may have erred. The answer to this question must wait till the commission of enquiry has published its findings.

Teaching Pathology in the United States and Sweden.—In the fall of 1954 a study of the teaching of pathology at nine medical schools in the United States was undertaken by Dr. Nils Ringertz of the Sabbatsberg Hospital in Stockholm. He found that in eight of these schools teaching was based on the same main principles, whereas the ninth school (Western Reserve University in Cleveland) represented a bold experiment on new lines. His report on this study in *Nordisk medicin* for June 17 tells what the American student does to master the elements of pathology, what examinations he has to pass, and what textbooks he reads. The author also shows in which respects the United States and Sweden differ most in the teaching of pathology. Difficulties over the prompt undertaking of postmortem examinations in the United States are a handicap to the teacher. The typical American student assists in a comparatively small number of autopsies, and his study of isolated, prepared organs is a poor substitute for the complete autopsy. It is, in the opinion of Ringertz, a pity that most experienced pathologists in the United States seldom teach by the autopsy table. On the other hand, keen appreciation is expressed of the United States teaching of pathology in general, and it is noted that more hours are devoted to this subject in the United States than in Sweden. In a table dealing with four Swedish and three American schools (Cincinnati, Harvard, and Cornell), the author shows how much better off the American student is with regard to the number of his teachers, with one teacher to every four students at Harvard and one to eight in Uppsala. Yet when the Swedish stu-

dent has completed his course in pathology, Ringertz believes he is endowed with more clinical experience and a greater capacity to correlate pathological with clinical findings than his counterpart in the United States.

Thallium Poisoning.—Fairly extensive use is made in Sweden of thallium as a rodenticide. At the department for industrial diseases of the Karolinska Hospital in Stockholm, four cases of thallium poisoning have recently been investigated by Glömme and Sjöström, who point out in *Svenska läkartidningen* for June 3 that thallium poisoning is apt to be overlooked by physicians if they do not inquire into the occupations of their patients because the symptoms may be of a general character. One of their patients was a woman, aged 48, who complained of tingling in the tips of her fingers, the soles of her feet, and her toes without presenting any definite manifestation of polyneuritis. Her complaints might have been dismissed as due to the menopause had not thallium been found in her urine and had not a careful inquiry revealed that the intensity of her symptoms had fluctuated with the degree of exposure to thallium. In this and in the other three cases the thallium sulfate had been handled partly in the dry state and partly as a solution for the impregnation of wheat. Makers of rat poison have hitherto been careless in the handling of thallium with their bare hands, and it is probable that when the necessary precautions are taken and the spilling of a thallium solution on skin and clothes is avoided, this form of industrial poisoning will be eliminated.

SWITZERLAND

A Rare Peromelus.—At the annual meeting of the Swiss Pediatric Society, H. Käser described a female infant in whom, instead of normally developed limbs, there were only stumps with no distal parts. At the age of 1 year the child had conical stumps 11 cm. long in lieu of arms and cylindrical stumps 4 cm. long instead of legs. The somatic and psychic development was otherwise completely normal. Radiograms of the upper extremities showed humeri minus the distal articular segment. The lower extremities had a bone formation that was almost triangular. This case, like those reported in the literature, does not clarify whether the defect is in the parents' genes or is caused by chemical or physical influences, disease of the mother, or a dietary deficiency. It can only be said that the condition is a malformation by inhibition and not a mutilation from intra-amniotic processes; this is shown by the symmetry and lack of scars. Embryologic considerations suggest that the teratogenic period is at the beginning of the second month of fetal life, at the time when differentiation of the extremities takes place.

Pitressin Test.—At the same meeting, Vest of Basel suggested that the commonly used Volhardt thirst test of urinary concentration could be replaced in children by a Pitressin test, which has the advantage of requiring no deficiency in liquids or foods. He practiced both tests in 47 infants and children whose ages ranged from 5 days to 13.5 years and compared the highest specific gravities obtained. The quantities of Pitressin used varied according to the age of the subject (from 1 to 10 units). In general, no significant differences could be found between the two tests in regard to the specific gravity of the urine, although the figures obtained from the Pitressin test were usually a little lower than those of the Volhardt test and varied more widely from the mean value. This is not true of infants less than 3 months old, since they normally have urinary hypotonia. After both tests there was distinct elevation of the specific gravity, but it was less after injection of the hormone. With neither of these tests were values obtained that were as high as those in older children. Thus the Pitressin test can be used in children for examination of the renal function except in young infants, in whom the kidneys' capacity for concentration is as yet insufficiently developed.

Tuberculosis.—Although in the last 50 years the mortality from tuberculosis in Switzerland has greatly diminished, the same is not true for the incidence of the disease. According to Press, there is a morbidity of 1.1 to 1.5% from open tuberculosis in adults, while the morbidity from tuberculosis as a whole has consistently exceeded 4.9%. Ott has pointed out the disproportion between the rapid decrease in mortality from tuberculosis and the constancy of the number of patients with the disease. Switzerland has made a great effort to attack the sources of the infection. Prophylaxis is directed toward prevention of infection, increase in defensive forces, and protection of the organism by BCG vaccination. In 1923, Adler and Loeffler first suggested that large groups of persons be examined by means of serial roentgenograms. This examination is usually practiced today in the form of radiograms made in various large groups and, eventually, among the contacts of patients with known tuberculosis. The effect of this method is clearly shown in the results of a test carried out in the Zürcher Oberland, a region that is both agricultural and industrial. In the 1946-1947 campaign radiography revealed 600 cases of tuberculosis among 46,832 persons examined; 50% of these were unsuspected. In the 1949-1950 campaign 471 cases were discovered in 37,629 persons examined; 54% of them were unsuspected.

The decrease in mortality is due not only to the progress made in medicine but also to improvements in the standard of living. Diet has been better adapted to the needs of the organism, and housing conditions have become more healthful. The reduction of working hours and consequent normalization of the work-rest ratio have contributed to this improvement. Finally, thanks to a way of living that incorporates more sun and light, persons have acquired more physical resistance. The physicians of the Scandinavian countries are to be credited with the institution of BCG vaccination on a large scale. This program was introduced in Switzerland and is now an integral part of antituberculous prophylaxis. In some cantons, realization of the program has been made possible through close cooperation between the medical profession and the Antituberculous League. For example, in the canton of Zurich mass vaccinations are performed every four or five years and mass roentgenography every three years. Periodic vaccination is necessary because of the limited duration of the protection afforded by the vaccine. BCG vaccination is voluntary and furnished gratis. During the period from 1950 to 1953, 91,500 residents of the canton of Zurich were tested with tuberculin; 53,300 in whom there was a negative reaction had been vaccinated with BCG. After a period of controversy, the Swiss medical profession decided in favor of the vaccine. Recently the city of Geneva opened its vaccination center. Considering the epidemiological conditions prevailing in Switzerland now, vaccination would seem to be indicated in adolescence. BCG vaccine will be administered in the higher classes of elementary school so that the young people can be fortified against the time when they will enter the atmosphere of factory and shop, where the risk of infection is great compared with that in the protected atmosphere of school and family. Vaccination will be offered to young men entering military service. The physician-in-chief of the Army has asked that the recruits be vaccinated before the start of basic training. Vaccination is essential for the following groups of the population: hospital personnel; medical students; children, adolescents, or young adults from tuberculous environments; and other groups particularly threatened with the disease. It would be desirable for all students and apprentices to be protected, but these are difficult groups to reach. BCG must never be imposed on the population but must always be offered on a voluntary basis.

The drop in tuberculosis mortality of the last 10 years has been mainly the result of the use of antituberculous medicaments. Patients with tuberculous meningitis, pulmonary tuberculosis, and tuberculous disease of the mucous membranes, bones, and kidneys are especially benefited by these agents. The concept of the tuberculous phenomenon has been completely revised. The old methods of treatment have been almost entirely abandoned in favor of resection, which has the advantage of eliminating the diseased portions from the body. In Switzerland, resection has superseded pneumothorax, both intrapleural and extrapleural as well as thoracoplasty and plombage. Switzerland's mountain sanatoriums are now assuming more and more the function of hospitals, rather than that of convalescent homes as they were originally. Diagnosis and therapy demand specialized equipment and the services of a specialized surgeon. Most sana-

V 1
195

toriums are acquiring these things and managing to weather the financial strain involved, but some have had to close their annexes. There is also a certain trend away from these institutions. Treatment at home has been greatly facilitated and probably also abused to some extent.

Small Hole in the Iron Curtain.—For the first time since 1945 the Polish government has allowed a Polish physician to study in Switzerland. Dr. Nyklewicz, director of the Bialystok (Poland) Hospital and head of the Clinic of Gynecology and Obstetrics, is now studying at the University of Geneva. It was in 1954, at the International Congress of Gynecology and Obstetrics held in Geneva, that a member of the Polish delegation started negotiations for this trip.

MISCELLANY

SMOKE ABATEMENT

Richard Gordon

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Smoking has a particularly strong appeal to the British public because it is our only vice which is wholly respectable. Clergymen puff away blamelessly, in life and in advertisement; schoolmasters bathe their corrected exercises in rich blue clouds; dons traditionally pickle their undergraduates with latakia. Nothing creates an appearance of thoughtfulness, solidarity, and honesty in the British mind more powerfully than a pipe.

Politicians who would rather defy a Whip than be spied by their constituents holding a glass, pose proudly for photographs with their smoking insignia. What Englishman can picture a safe-cracker pausing at his job to relight his favourite briar? And who thinks the worse of Sherlock Holmes for continuously filling himself with noxious agents by the mighty bowlful?

The discovery of the spoil-sport statisticians that smoking is really a more dangerous pastime than speedway racing has already propelled quiet ripples of confusion through the medical profession. Most doctors smoke, and addicts are poor arbiters of their addiction: while the practitioner who comes mellow from his after-lunch pipe is murmuring in his surgery, "A little of what you fancy . . .", his colleague, white-hot in the fresh fires of abstinence, sends his patients away emptying their cigarette-cases like loaded revolvers.

I gave up smoking myself when I was a medical student, after discovering one afternoon, in the index of Price's *Textbook of the Practice of Medicine,* the entry between Smallpox and Snakebite:

Smoking a cause of chronic pharyngitis
  a cause of ptyalism
  cardiac symptoms of
  excessive, enterospasm in
  harmfulness of, in intestinal spasm
  in relation to atheroma
    to gastric and duodenal ulcer
    to gastric irritation
    to intermittent claudication
    to laryngitis
    to palpitation
    to pulmonary tuberculosis
    to thrombo-angiitis obliterans

This seemed to describe so clearly my condition when groping for the morning cigarette that I instantly gave my daily packet to the mortuary attendant, and decided to discover by private research why other people tolerate these life-long symptoms as cheerfully as a schoolboy's split knees. This is a difficult clinical investigation, because nobody will admit he smokes because he wants to. The reasons most commonly offered in the consulting room for a chronic bronchitis and mahogany fingers are:

Me nerves, Doctor
Sort of helps me to think
Can't digest nothing otherwise
Keeps down the weight
Keeps up the weight
Everyone else does
Habit, I suppose
Keeps the moth out of the carpet.

A search for more precise reasons from my scientific colleagues barely furthered the investigation. A physiologist declared that if you paint the nerves in a cat's neck with a solution of nicotine the animal gives an enormous wink. This, he explained, is why cats don't smoke, but he could go no further. A hospital pharmacologist, who smokes an old pipe bilaterally notched through a lifetime of lighting from Bunsens, explained that a cigarette contained enough nicotine to slaughter an alleyful of cats, was packed with ammonia and other unpleasant vapours, and gave off more carbon monoxide than an old car. He had no explanation why a queue of men, during the war, were prepared to stand in the rain for half an hour on the off-chance of being permitted to buy a packet of these bundles of poison. A psychiatrist merely murmured darkly about remnants of infantilism, and recommended playing with an abacus after dinner instead. It seems that no smokers can possibly enjoy smoking; they smoke only because they don't enjoy it if they aren't.

This makes the problem of stopping smoking impossibly complicated, and the brave British public will probably continue to puff itself into a premature grave to the dismay of the Ministry of Health and the delight of the Exchequer. The common man has accepted without grace the assurance that the more he smokes the more likely he is to kill himself, for he has a constitutional dislike of statistics and his common sense tells him (1) lots of people smoke heavily and don't get cancer; (2) lots of people get cancer and don't smoke heavily. In the last century his common forbears decided for the same reasons that germs don't give you diseases like typhoid and cholera; but common sense never lacks its martyrs, and their bones form thick memorials to our forgotten centres of insanitation.

Medical science never takes away without giving something in return. In the last ten years it has discovered you can drink as much as you like if you swallow plenty of vitamin B, and your liver won't end up as a lantern slide in a temperance lecture. If everyone smoked less and drank more the Exchequer wouldn't suffer and we should all be healthier. Possibly we would beat our wives a little, but what are a few more bruises and fractures to the National Health Service? This is an unsentimental age.

ROGER GILES, SURGIN

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Skulemaster, Groser and Hundertaker, respectably informs ladys and gentlemen that he drors teef without wateing a minit, and sells vizicks for a penny a peace; Joes-harps, penny wissels, fryin-pans and other moozikal Hinstruments, hat grately reydoosed figers. As time is cruel bad I begs to tell ee that I also teaches yung ladys and gentlemen their grammur in the purtiest mannar and grate care is taken of their morrels and spelling. Halso I sells ginger beer, matches and other pickles such as hepsom salts, hoysters, and winzer sope. I also taches gography, rithmetic, and jimnasticks. Gode Save Thee Kinge.

THE LEISURE CORNER

MEDICAL POETRY

Doctors are writing creatures. Some of them seem to write as naturally as beavers build dams or sea gulls prey upon shellfish, but usually in their spare time. This is only natural due to the fact that physicians from the beginning are trained in writing down case histories, summaries, diagnoses, and prognoses. Perhaps the most universal of all hobbies for all physicians is book-collecting, but writing probably comes next, and each reinforces the other. Every physician has a shelf of books, even if it is only the textbooks he studied when he was in medical school, but nearly every physician has a few volumes that represent his personal choice in reading. Nearly all doctors spend some time reading medical journals, and most spend some time reading general literature. It is not an obsession, it is a natural habit, resulting from the methods of training in modern (and for that matter, in ancient) schools of medicine.

As a special department of this phenomenon, there is the field of poetry that somehow seems remotely connected with music in that poetry is more musical than prose. Doctors also are musicians, but less prominently. It might be remembered here that poetry, music, and medicine were all the special interests of Apollo, sometimes called the "God of Medicine and Poetry." However that may be, doctors see so much and experience so much and do so much that is active, useful, and noteworthy, it seems only natural that they should record what they see, experience, and do in prose or poetic fragments. Some have even achieved more. For example, one of the greatest of all ancient poets was probably a physician. That is to say he was the equivalent of what we consider the scholar-physician today. Actually the word physician means "naturalist" and Lucretius was that, preeminently. His epic poem "Concerning the Nature of Things" covers just about everything medicine, psychiatry, and epidemiology include today. Almost nothing is known about his life, but histories estimate he may have lived between 98 and 55 B. C. There is much speculation about him, his health, and his habits, but his work speaks for him more eloquently than histories could. It is a magnificent achievement, and the many translations starting with that of Dryden give an impressive view of the mentality of the author. Particularly of interest to physicians is the last part of this epic poem that describes graphically a plague that Lucretius had heard about from Thucidides and later documented for himself in Latin verse. He is classed among the Epicurean philosophers, but it is as a poet that he is outstanding.

Many authors believe "Concerning the Nature of Things" by Titus Lucretius Carus to be the third greatest poem in the world, the first two being the Iliad and the Odyssey attributed to Homer. Some authorities claim that Lucretius has drunk deeper of the scientific spirit than any other poet of ancient or modern times except Goethe, who was himself a physician of sorts. That is to say, in his universal quest for knowledge he embraced all he could of contemporary or ancient and medical knowledge. This particular poem "Concerning the Nature of Things" bears all the earmarks of having been written by a man who was clinically observant and medically oriented. It is a profound book that must be read slowly and requires intensive study. So it is that any consideration of medical poetry or poet-physicians must begin with consideration of Titus Lucretius Carus.

After him, the field is very wide and plentifully stocked with poets who were physicians and physicians who were poets of all sorts. A more complete account of this subject may be found in "Poet Physicians," compiled by Mary Lou McDonough and published by Charles C Thomas, Publisher, in 1945. Let us consider Wang Wei, a young country doctor in China who was also a public health officer in his own community. He was probably an herb doctor, as all Chinese medicine was herb medicine in his time (699-759 A. D.), but his paintings and his poems are still counted among the irreplaceable treasures of his homeland. Read in translation today, his poems seem strikingly modern.

Medical students today memorize the cranial nerves by learning the jingle: "On old Olympus' piny tops, a Finn and German vainly ate hops," or some such version of this couplet. This device represents a hangover from a time when a vast amount of medical knowledge was put into rhyme and memorized. "The School of Salerno" is an example. It is a long poem written by one or more authors, probably all members of the faculty of the School of Salerno and as such it is one of the oldest medical poems. Its "Regimen Sanitatis" was written in double-rhymed Latin hexameter about 100 A. D. It was first printed in German in 1472 and later reprinted in Latin and has since been widely quoted. For 500 years almost every physician in Western Europe was thoroughly familiar with this remarkable poem, which assumed of itself a kind of oracular authority.

No list of physician-poets would be complete without mentioning Girolomo Frascatoro. He was indeed a remarkable man and for many reasons. He knew astronomy, philosophy, mathematics, and what geography and botany as was taught at that time (1483-1553), but his crowning achievement is the poem in which he described syphilis precisely, telling about its incidence and course in various countries of Europe. This poem titled "Syphilis Sive Morbus Gallicus" describes the use of a heavy metal (mercury) in the treatment of that disease and contains the germs of many other ideas that later sprouted to full growth in the work of Pasteur, Schaudinn, and Fleming. This poem is a remarkable combination of practical information and symbolic explanation. In the book he tells how a young man infected with syphilis was supposed to have been cured by a goddess who bathed him in a lake of silver in an underground cavern. Psychoanalysts would find delight in that.

There were many physicians who chose poetry as a means for spending their spare time. To mention but a few—Thomas Campion, who was a contemporary of Shakespeare; Abraham Cowley, who came a little later; Henry Vaughn, noted among the metaphysical poets; and John Arbuthnot, who lived during the Golden Age of English literature. Arbuthnot was a Scottish physician. He received his degree as a doctor of medicine at St. Andrews' in Scotland and was appointed Physician Extraordinary to Queen Anne. Mark Akenside (1721-1770) wrote a remarkable thesis on the development of the human fetus and at the same time produced his epic poem "The Pleasures of the Imagination." There are dozens, actually, some known for a single poem, some for one book, and some for a more impressive output, but all sharing the common factor of the medical background and the discipline of medical training.

Few people know that Edward Jenner (1749-1823), who began the world's greatest conquest of disease with the discovery of and the application of vaccination and who was a student and an interne of the great Dr. John Hunter of London, also found time to write poetry. His "Address to a Robin" and "Signs of Rain" are classical examples of poetic art. Then there was Schiller, who completed his medical training at the age of 21 and who was drafted into military service as a regimental surgeon at Stuttgart. His play "The Robbers" and his famous dramas, "William Tell" and "Maid of Orleans" will be remembered as long as the German language lasts. Besides, he was the friend of Goethe and, incidentally, was the son of an Army surgeon.

Mention should also be made of John Keats, who was appointed as a dresser at Guy's Hospital in London in 1816 and in July of the same year passed with credit his examinations as a licentiate at Apothecaries in London because he abandoned surgery, giving as a reason the fact that he felt himself not fitted for it. Tuberculosis mowed him down in 1821 but not before he had written some of the finest poetry in the English language. One might also list Thomas Holly Chivers (1807-1858), who is remembered partly for his association and his controversy with Edgar Allen Poe. Chivers graduated as a doctor of medicine in 1830 from Transylvania University, Lexington, Ky., and was offered a chair in that university 26 years later. For this period, he wrote poetry that was unique. He was also a painter and an inventor. He designed a machine to split the fibers of silk from the cocoons of silkworms.

The crowning achievement of the muse in the 19th century in the United States of America was Dr. Oliver Wendell Holmes, born in 1809, died in 1894. He almost spanned the 19th century. A preeminent physician, he taught at the Harvard Medical School and practiced in Boston. His most famous article was "The Contagiousness of Puerperal Fever," which everyone now takes for granted, but in his day it was a very novel idea. He will always be remembered for "The Autocrat of the Break-

V 1
195

fast Table," "Old Ironsides," "The Wonderful One-Horse Shay," and his most distinguished poem "The Chambered Nautillus." No poet writing in England or America has ever produced a single poem of greater distinction and beauty. It embodies a spiritual philosophy based on materialistic observation that even today is incomparable, and rarely indeed does anyone even approach the exalted level of the human utterance this poem expresses.

As for the present century, it is too early to tell who the medical poets are, but certainly preeminent among them is William Carlos Williams, M.D., now three score years and ten and a long-time practitioner in New Jersey. His many volumes will reward the reader who seeks them out. Even at 70, he continues to write with the tongue of youth, which is the tongue of poetry. And also there is Merrill Moore, whose efforts on behalf of the sonnet have been poetically therapeutic and possibly not in vain. Moore is known for his many books, all products of his leisure time. (See "Poet and Psychiatrist" by Merrill Moore, M.D., a clinical portrait with an appraisal of his poems by Henry W. Wells, published by Twayne Publishers in 1955.) He works from nine to five as a practicing psychiatrist in Boston. His books, "The Noise That Time Makes," "Six Sides to a Man," "*M*: One Thousand Autobiographical Sonnets," "Clinical Sonnets," "More Clinical Sonnets," "Illegitimate Sonnets," "Case Record from a Sonnetorium" and "A Doctor's Book of Hours" are works that bear the seal of the physician.

MEDICAL FILM REVIEWS

One Victory: (Cleared for television) 16 mm., color, sound, showing time 10 minutes. Produced in 1954 and procurable on loan or purchase ($75) from University of Minnesota, Audio Visual Education Service, Basement, Wesbrook Hall, Minneapolis 14.

The purpose of this film is to show a case history of a young girl who is given the opportunity of having a normal life through the efforts of the staff and facilities of the University of Minnesota Heart Hospital and to inform the public of what the Variety Club Heart Hospital is doing. The film shows heart specialists and surgeons preparing the 5-year-old girl for surgery to correct a congenital defect inside her heart. Doctors had been experimenting with animals and found that the heart could be tied off from the body's circulation by the help of a refrigeration blanket for as long as 10 minutes and by lowering the body's demand for oxygen from the blood. This is a reenactment of the successful first attempt to use the new technique on a human patient. This is a film prepared for nonmedical use, to stimulate public interest in the Variety Club Heart Hospital at the University of Minnesota, in particular, and in the possibility of successful results from heart surgery in general. Operative techniques are only suggested, and the audience to be reached seems to be those who are apprehensive about having surgery performed on their children. This film could also be used as a presentation of medical progress with emphasis on the value of research. The photography and narration are well done.

Peridural and Caudal Anesthesia: 16 mm., color, sound, showing time 20 minutes. Prepared in 1954 by Charles C. Wycoff, M.D., University of California, San Francisco. Sponsored by Astra Pharmaceutical. Procurable on loan from Charles C. Wycoff, M.D., San Francisco Hospital, San Francisco 10.

This film presents briefly the anatomy and author's technique in peridural and caudal anesthesia. After an abrupt introduction, demonstrations are made on a skeleton of the method of localization of the site and route of insertion of the needle for both peridural and caudal injections. Demonstrations of these two methods of anesthesia are then made on patients. Emphasis is placed mainly upon the mechanics of insertion of the needles, verification of the sites, and injection of the anesthetic solutions. Unfortunately, much of the narration is too rapid and not synchronized with the image on the screen. Complications are narrated, and their management is briefly considered. The importance of having efficient mask oxygen therapy immediately available should be added to this discussion. This film should include emphasis upon the need for strict asepsis as well as the avoidance of the use of irritating solutions. It would be enhanced by the addition of illustrations and discussion of the methods for localizing and controlling the extent of blocks obtained with these procedures. The photography is excellent. In its present form, this film might be of interest to advanced residents in anesthesiology and qualified anesthesiologists.

Mrs. Hazard's House: 16 mm., color, sound, showing time 13 minutes. Produced in 1954 by King Horton Productions, Los Angeles, for and procurable on loan or purchase ($79.20) from Prudential Insurance Company of America, 5757 Wilshire Blvd., Los Angeles.

The purpose of this film is to educate parents on the need for practicing and teaching safety habits to their children in an effort to help prevent child accidents in the home area. It opens with an animated portion that shows "Mrs. Hazard's House" and many of the hazards that exist in the home area. It is revealed that the animated portion has been a telecast, and a young family group is shown watching this telecast. They comment on the hazards that have been demonstrated and assure each other that no such hazards exist in their home. At this point, the announcer on the telecast speaks to them cautioning that it might be a good idea to look around their home more carefully and suggesting a few places they might check. In the following sequences they check some of these points and find that there are potential danger points for their child. The film closes with the author speaking on the general subject of child accidents. This film is very well done, in particular the parts that graphically present the hazards to be found in the home. This film is recommended for parent groups and classes for prospective parents.

Congenital Absence of the Vagina and Its Treatment: 16 mm., color, sound, showing time 24 minutes. Prepared by Joseph Gaster, M.D., College of Medical Evangelists, Los Angeles. Produced in 1954 by College of Medical Evangelists and procurable on loan or purchase from Joseph Gaster, M.D., 416 N. Bedford Dr., Beverly Hills, Calif.

This film presents an interesting and educational exposition of a relatively uncommon condition. The technique demonstrated is somewhat more extensive than that in common usage but, as employed by the demonstrator, serves the purpose very well. The two cases presented are ideal from a standpoint of showing the problem and end-results. As shown in the film, the creation of an artificial vagina utilizes sharp, blunt section of the genital space and epithelization by means of a split thickness graft over a Pyrex form. There is excellent demonstration of the internal appearances. The photography is also excellent, and there is good continuity with a minimum of extraneous or nonessential footage.

NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

Streamline Flow in the Veins: 16 mm., color, sound, showing time 10 minutes. Demonstrated by Dr. D. A. McDonald and Dr. E. P. W. Helps, the Medical College, St. Bartholomews Hospital, London. Produced in 1954 by the Wellcome Film Unit, London. Procurable on loan (service charge $2) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn Street, Chicago 10.

In this film streamlined and turbulent flow are demonstrated in a glass model. Reynold's formula, giving the critical conditions for the change from one type of flow to another, is discussed. By means of dye injected into tributary veins, the type of flow at different points in the rabbit's vena cava and portal venous system is observed. Two practical applications are brought out in this film: (1) the fact that incomplete mixing of the blood in enlarged veins means that samples drawn by needle are sometimes not representative of the total content of the vein; and (2) that localized infections in such organs as the liver can result from the movement of infected material through veins with incomplete mixing. This film will be of great interest to physiologists specializing in the field of circulation, and, since the phenomena it demonstrates are not easily exhibited in the laboratory, it should prove to be of value in courses of physiology for medical students. The authors deserve a compliment for the care with which the materials have been arranged for photographing.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rheumatic Heart Disease in Scarlet-Fever Patients Treated with Penicillin: A Follow-Up Study After Seven Years. L. Weinstein, N. H. Boyer and M. Goldfield. New England J. Med. **253:**1-7 (July 7) 1955 [Boston].

The authors report observations on patients examined seven years after they had been treated with penicillin for scarlet fever. To provide a basis for the proper evaluation of the observations made in 1953, results of the studies carried out in 1946 are briefly summarized. One hundred sixty-seven patients with scarlet fever were treated by intramuscular injection of 15,000 units of penicillin every three hours for 10 days. Group A Streptococcus pyogenes was isolated in every case at the time of hospitalization. The majority of the patients were 2 to 15 years of age. Electrocardiograms were obtained daily in most patients and every other day in a few. The patients remained in the hospital for a minimum of three weeks, some for longer periods. In 12 of the 167 patients acute rheumatic fever was thought to have developed despite the use of penicillin. One hundred ten of the 167 patients treated in 1946 returned for study in 1953. Of these, 100 had had normal or borderline electrocardiograms, with no clinical manifestations of the rheumatic state, and 10 had been suspected of having had rheumatic fever seven years earlier. None of those without electrocardiographic changes in 1946 had any evidence of cardiac disease in 1953. Of those with prolonged PR and QT intervals seven years earlier eight had definite or "probable" rheumatic heart disease. In six mitral insufficiency and stenosis were present; two of these had aortic as well as mitral lesions. The data presented suggest that penicillin therapy of streptococcic pharyngitis in children, even when applied early, may not significantly decrease the occurrence of acute rheumatic carditis. In children the clinical features of the acute rheumatic state may be markedly suppressed by the chemotherapy of the initiating streptococcic infection so that most or all of the characteristic signs and symptoms are absent and electrocardiographic evidence of carditis becomes the most prominent and sometimes the only diagnostic feature. Because of this it is probably necessary to redefine the present criteria for the diagnosis of acute rheumatic fever, particularly for children with antibiotic-treated streptococcic pharyngitis. Demonstration of prolonged atrioventricular-conduction time, after a latent period, probably is highly significant for the diagnosis of rheumatic carditis in the absence of major manifestations, if the patient can be proved to have had a recent streptococcic infection.

Premonitory Period of Myocardial Infarction. P. Maurice, J.-L. Beaumont, A. Leupin and J. Lenègre. Arch. mal. cœur **48:**551-566 (June) 1955 (In French) [Paris, France].

The authors studied 108 patients with myocardial infarcts and found that 60.2% of them had had the classic form of attack with no premonitory symptoms. This group was fairly evenly divided between those patients in whom the infarction was the first clinical sign of coronary disease and those with long-standing angina pectoris. In 43 patients (39.8%) of the series, there existed a premonitory period the duration of which varied from a few hours to over a month (average 17.1 days). The period was characterized by the appearance or aggravation of angina. There was no fever or leukocytosis and the erythrocyte sedimentation rate was unchanged. Having recognized the premonitory period of myocardial infarction as a clinical entity, the authors made a thorough study of 71 patients with angina pectoris whose usual pattern of pain was undergoing change. No clinical criteria could be set up for determining whether their disease would progress to myocardial infarction or not, but electrocardiography frequently showed anomalies that reinforced clinical suspicion. These disturbances were usually those of acute or subacute coronary insufficiency. In 39 of 62 patients there was an ischemic lesion, subendocardial in 15 and subepicardial in 24; in 20 of the 62 there was an isolated subepicardial ischemia. These anomalies are significant only when their recent appearance can be proved (by comparison with previous electrocardiograms). The finding, in three patients, of a blood hypercoagulability in the days preceding necrosis led the authors to look for such a warning sign in the other patients. Intense or moderate hypercoagulability, as manifested by the in vitro resistance to heparin, was found to be immediate in 49 patients (69%) and secondary in 15 (21%); the authors believe it to be a factor of extreme importance, since it is not ordinarily present in severe angina and may therefore act as a diagnostic indication of impending coronary attack. The 71 patients were given anticoagulant therapy with various agents. Pain disappeared in 64.4% of them, was clearly benefited in 29.5%, was unchanged in 2.8%, and was aggravated in 2.8%. It would seem that treatment with anticoagulants is particularly necessary in, and beneficial to, patients with recent alterations of an established pattern of angina pectoris.

Is Phenylethylacetic Acid Antiatherogenous? J. Cottet and A. Mathivat. Presse méd. **63:**1005-1007 (July 2) 1955 (In French) [Paris, France].

Phenylethylacetic acid has a definite antiatherogenous effect in experimental animals. The authors used phenylethylacetamide (hyposterol) in the treatment of 37 patients with atheromatous cardiovascular disease over a period of from one to six months. It was found that the drug has an effect on the total serum lipids. Cholesteremia was decreased in 75 to 80% of the patients, and this effect was more marked as the amount of blood cholesterol was higher to begin with. The decrease was generally statistically significant and sometimes reached 40 to 50%, even 60%. Normal rates of cholesteremia were not affected. In one-fourth of the patients a transitory rise in blood cholesterol was observed between the fourth and eighth weeks of treatment; this was usually followed by a fall to levels below those seen before treatment. The phenol turbidity reaction of Kunkel was decreased as much as 50%. Lipemia was affected in about the same way as cholesteremia. Lipid fractionation at electrophoresis was modified by hyposterol, with a tendency toward normalization of the profile. It is thus concluded that phenylethylacetic acid acts on the biochemical disturbances that characterize atherosclerosis, tending to restore the organism to normal.

Mitral Disease and Epileptic Syndrome. G. B. Lusiani and G. P. Vecchi. Minerva cardioangiol. **3:**217-223 (May) 1955 (In Italian) [Turin, Italy].

The authors report the histories of five patients with mitral disease, mainly mitral stenosis, in whom a first epileptic attack occurred in adult life and suggested the presence of a relationship between the two conditions. The convulsive attacks with loss of consciousness were true epileptic seizures and not syncopal manifestations with convulsions. Little is known about the mechanism of dependence of epilepsy on mitral disease; many pathogenetic hypotheses have been advanced, but none gives a satisfactory explanation. The authors state that a latent epileptogenous focus might occasionally be disclosed by a hemo-

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V 1
195

dynamic circulatory disorder. Therefore, the condition sine qua non present in these patients before heart disease was, according to the authors, a latent epileptogenous condition, which became clinically evident after a long interruption of the strong systolic contractions followed by acute cerebral ischemia.

Differential Diagnosis Between Bronchial Carcinoma and Unspecific Pneumonia. V. Kesztele. Wien. med. Wchnschr. **105:** 514-516 (June 25) 1955 (In German) [Vienna, Austria].

Seven men between the ages of 40 and 67 are reported on in whom differential diagnosis between unspecific pneumonia, which they had, and bronchial carcinoma, which was suspected, was clarified only by surgical intervention. The subjective complaints of the patients corresponded with those of almost any disease in the thoracic cavity and were of little value with regard to evaluation. There was relatively little irritation causing cough and only moderate expectoration in patients with abscess formation and bronchiectatic cavities. The lancinating pain in the chest and back was most pronounced in the patients with a middle lobe syndrome, and it was somewhat less intense in those with desquamative pneumonia. The involvement of the surrounding pleura played a decisive part in this pain. Patients with desquamative pneumonia of one year's duration associated with abscess formation had the greatest loss in body weight, i. e., 33 lb. (15 kg.), while patients with carnification pneumonia lost 22 lb. (10 kg.) in the course of five months. The duration of the disease varied from six weeks to one year and despite unsatisfactory results from conservative treatment supplementary tests were omitted. Signs of infiltration and disintegration lent themselves to interpretation in the sense of tuberculosis as well as of other parenchymatous diseases, while laboratory and cytological findings proved the absence of tuberculosis in most patients, particularly in those with carnification pneumonia. A malignant condition could not be proved or excluded. Horizontal and transverse tomographic examination supported the suspicion of tumor in five patients. In two patients with interstitial and chronic pneumonia the tomograms were not suggestive of tumor, but in both these patients bronchial narrowing or occlusion was shown by bronchography and bronchoscopy. Bronchoscopic findings were significant in revealing purulent secretion in the patients with abscess formation and suppurative bronchitis. In the other patients, they only showed redness of the bronchial mucosa, and in one patient with desquamative pneumonia, bronchoscopy revealed narrowing of the bronchus, as did bronchography also. All patients had been treated with antibiotics and some of them with sulfonamide compounds and tuberculostatics, but without any improvement in the patients' condition. After exclusion of infarction pneumonia and tuberculosis, surgical intervention seemed indispensable because of the roentgenologically and bronchographically supported suspicion of tumor. Except for one patient with far advanced desquamative pneumonia who died of postoperative hemorrhage caused by erosion and of pulmonary gangrene, the other six patients recovered. Although the most modern diagnostic methods may have their limitations, it would be wrong not to make use of them. The author's cases were reported in an attempt to convince the physician of the necessity of making supplementary studies.

Significance of Tobacco Smoking and Other External Factors in Origin of Pulmonary Cancer. N. Ringertz. Nord. med. **53:**951-956 (June 16) 1955 (In Swedish) [Stockholm, Sweden].

The increased frequency of cancer of the lung has brought a change in the relative frequency of the different histological types of the disease. Pulmonary cancer in women has not increased in proportion to that in men. Pulmonary adenocarcinomas, which by and large maintain an even sex apportionment, are assumed to make up the main part of pulmonary cancers on an endogenic basis. The increased incidence of pulmonary cancer is ascribed to increased influence of exogenic factors that act more intensively or have been able to act longer on men than on women. The chief causes are sought in the intensified exposure of large numbers of persons, especially in industrial areas, to carcinogenic substances suspended in the air in more or less closed places of work and in exposure to tobacco smoke. Some parallelism is demonstrable between cigaret smoking and the incidence of cancer of the lung after 15 or 20 years, and the numerous comparative investigations of the smoking habits of patients with the disease and of the control series show consistent results. Experimental evidence for correlation between tobacco smoking and pulmonary cancer is less strong than the statistical evidence. If the increasing incidence is to be arrested on a long-term basis, a campaign must be instituted against heavy smoking, particularly the cigaret smoking of young persons, and measures must be taken to reduce carcinogenic pollution of all places of work and to promote further research for the identification of carcinogenic substances in tobacco. Investigations during recent years testify to carcinogen in tobacco smoke, although in low concentration. Experimental studies are directed to the establishment of the amount and kind of carcinogenic substances in tobacco and its combustion products. The chemical composition of these carcinogens is not yet known. The fact that high combustion temperature is needed for the smoke to contain carcinogens may perhaps afford an explanation of why according to statistics cigaret smoking is more dangerous than pipe or cigar smoking.

Practical Data on Personal Experiment with Trypsin Aerosol Therapy: Report of 312 Patients. A. Biron and L. Choay. Presse méd. **63:**1007-1008 (July 2) 1955 (In French) [Paris, France].

Three hundred twelve nontuberculous patients with bronchiectasis, acute atelectasis, and bronchial asthma, complicated in some cases by infectious bronchitis, were given aerosol therapy with trypsin. Results were excellent in 236 patients, good in 11, and unsatisfactory or nonexistent in 65. The patients received half-hour sessions of therapy morning and evening; relief was ordinarily obtained within two days, but some patients had to have as many as 20 sessions of therapy. It is possible to associate antibiotic therapy with this method, but no significant gain is made thereby. A bronchodilating agent is a useful adjunct; the authors used aleudrine (isoprenaline 1%). In the dose used (0.25 gm. a day), trypsin had no effect on blood coagulation. The presence of expectoration that must be liquefied is the indispensable indication for trypsin therapy. When this rule is followed, there are few side-effects of therapy. True tracheobronchial intolerance of the product is rarely encountered, and skin or mucosal reactions are easily controlled with antihistamines. Nebulization therapy should not be used on young infants. Trypsin in aerosol is an efficient therapy for pulmonary disorders in which there is hypersecretion.

Diphtheria Morbidity and Antitoxic Diphtheria Immunity with Regard to Anatoxin Vaccination. E. Tosi. Riv. clin. pediat. **55:**166-189 (Feb.) 1955 (In Italian) [Florence, Italy].

An investigation was carried out to ascertain the causes of the high diphtheria morbidity in Italy despite the enforcement of a law making antidiphtheritic vaccination compulsory for all children in the 2nd year of life. A study of 1,100 children attending the Pisa public schools revealed that the disease attacked mainly children of the school age group (6 to 14 years) regardless of whether they had or had not received the vaccination in the 2nd year of life. It thus revealed that the vaccination carried out according to Italian laws on active prophylaxis against diphtheria does not protect the child of the school age group from the infection. A study of children who had been vaccinated indicated that the immunization conferred on the child by the first vaccination lasts for an average of one year and that children of the school age group are practically without any defense against the disease at a time in which the possibilities of contagion are greatest. The degree of vaccine immunization can be increased and the period of its duration prolonged up to the preschool age if, one year after the first vaccination, a new dose of vaccine (recall injection) is given. If immunization is to be prolonged for the entire school period, it is necessary to give a second recall injection at the time the child enters school (6 years of age). The author advocates the passing of a law that will make compulsory the administration of recall injections, at least two of them, to children in 3rd and 6th year of life.

Prolonged Antibiotic Therapy of Pulmonary Tuberculosis with Isoniazid Associated with Streptomycin or *p*-Aminosalicylic Acid: Its Influence on Indications for Pneumothorax. P. Véran. Semaine hôp. Paris **31**:2354-2359 (July 2) 1955 (In French) [Paris, France].

A comparison is made of the results obtained over a 10 month period in two similar groups of patients with ulceronodular tuberculosis, one treated with isoniazid and streptomycin and the other with isoniazid and *p*-aminosalicylic acid. The first group numbered 87 patients at 2 months but dwindled to 51 at 10 months. The second group had 78 patients at 2 months and 50 at 10 months. Expectoration was more often dried up by isoniazid and streptomycin than by the other combination. The results were radiologically the same for both methods in regard to new lesions and regardless of the extent of the lesions. For old lesions, isoniazid and streptomycin had the advantage. Improvement frequently slowed or stopped at a period characteristically beginning in the fifth or sixth month of treatment. Bacteriologically, the percentage of sputum conversion was slightly higher with isoniazid and *p*-aminosalicylic acid. After a year, some patients still harbored tubercle bacilli, some of which were sensitive and others resistant to isoniazid and most of which were sensitive to streptomycin. The lesions usually remained stationary. Bacterial resistance to isoniazid developed belatedly but in the same manner for both groups. The failure of these associations to benefit cavitary tuberculosis is an excellent indication for pneumothorax, which should not be put off unduly.

Calamities from the Use of Cortisone in Unrecognized Tuberculosis. W. H. Oatway Jr. and G. A. Paulsen. Arizona Med. **12**:275-276 (July) 1955 [Phoenix, Ariz.].

Oatway and Paulsen emphasize that pulmonary tuberculosis can develop after the corticoid drugs have been given for conditions of the joints, skin, and lungs in persons considered (but not proved) to have normal lungs. The seven patients presented by them had received courses of steroid drugs in such a relationship to the onset of their tuberculosis that they can be presumed to have been an eliciting factor. Steroid therapy had been given for arthritis, rhizomelic spondylitis, dermatitis, asthma, and bursitis. In none of these patients had pulmonary tuberculosis been excluded by roentgenoscopy, although two of the patients had a history of earlier tuberculosis. Active tuberculosis was found in the weeks or months after cortisone and other steroid drugs had been used. The patients probably were infectious between the activation of their lesion and the diagnosis of tuberculosis. The authors suggest that the following precautions be taken in the use of cortisone, corticotropin, and other steroid drugs. 1. A pulmonary tuberculous lesion should be ruled out by x-ray examination of the chest. 2. If the x-ray film indicates an inactive lesion, and the use of corticoids proves necessary, chemotherapy for tuberculosis should be added as a precaution. 3. Chemotherapy for tuberculosis may be used if the tuberculin skin-test is positive and a family history of tuberculosis is present. The relative risk in using the steroids in the presence of a probably tuberculous lesion, or even of a positive skin-test, is not certain at present, but it would seem wise to minimize it by a protective blanket of antituberculous drugs. Experiments in animals have shown that tuberculosis is not aggravated and the animal may do well, if antituberculous drugs are used with the steroid drugs. The authors have used cortisone in tiny but effective doses for allergic skin lesions, severe herpes of the face, and similar conditions without harm to the tuberculous lung lesions undergoing chemotherapy.

Analysis of 177 Cases of Hypertensive Vascular Disease with Papilledema: One Hundred Twenty-Six Patients Treated with Rice Diet. B. Newborg and W. Kempner. Am. J. Med. **19**:33-47 (July) 1955 [New York].

In 177 patients with hypertensive vascular disease and papilledema who were admitted to the department of medicine of Duke University in Durham, N. C., between 1942 and 1953, an attempt was made to treat all of them with the rice diet. Follow-up in six patients was inadequate or the treatment period was too short for evaluation. In 33 patients with hypertensive neuroretinopathy treated with the rice diet, electrolyte imbalance developed within the first three months of the diet. Treatment with drastic salt restriction, therefore, could not be carried out, and additional sodium chloride or other chloride was given. In 31 of these 33 patients the total phenolsulfonphthalein excretion in two hours was below 36% indicating impaired renal function. All 33 patients died. Treatment with the rice diet in 18 patients was not carried out at any time; only one of these is still living. In 120 patients with hypertensive neuroretinopathy confirmed by eyeground photographs, treatment with the rice diet was carried out for 1 to 117 months; in 83 of these the total phenolsulfonphthalein excretion in two hours was below 55%; this includes 4 patients in the terminal stage of the disease, in whom the phenolsulfonphthalein excretion was not measured. Forty-seven (57%) of the 83 patients survived one year; 26 (31%) are still living four years and three months (average) after treatment was started. In 37 of the 120 patients the total phenolsulfonphthalein excretion was 56% or more in two hours; 34 (92%) of them survived one year; 26 (70%) are still living five years (average) after treatment was started. One hundred of the 120 patients were followed after the initial period of the treatment with the rice diet, and in these patients the relation of the length of time of supervised treatment to the survival time was studied. In 39 of these patients the period of supervised treatment was 2 to 12 months. Seven of the 39 died during this period while presumably still following the diet; only 3 of the 7 were following it correctly. Thirty-two of the 39 were treated for 2 to 12 months and then to a greater or lesser extent discontinued the treatment; only 6 (19%) of the 32 are still living. Eighteen of the 100 patients were treated for an average period of three years and then to a greater or lesser extent discontinued the treatment. Nine of these 18 patients are still living. The remaining 43 of the 100 patients were treated over one year with the rice diet and continued treatment. Thirty-seven (86%) of these are still living; of the 6 who died only 3 were following the diet correctly. In 92 of the 100 patients in whom the effect of the rice diet on retinopathy was studied with the aid of the available eyeground photographs, papilledema disappeared completely. The effects of the rice diet on blood pressure, serum cholesterol, blood nonprotein nitrogen, T_1 deflection in the electrocardiogram, cardiothoracic ratio, and renal function were studied in 61 patients who were reexamined at least one year after treatment had been started. A comparison of the findings before treatment, during the period of strictest adherence to the rice diet, and at the most recent examination showed that the strictest adherence to the rice diet produced the most favorable results. Dietary modifications, therefore, should be made gradually and with careful observations of blood pressure readings, blood chemical findings, electrocardiograms, chest roentgenograms, and eyeground photographs. Intensive dietary treatment should be started as early as possible and continued until all signs of the vascular disease have disappeared.

The Night-Eating Syndrome: A Pattern of Food Intake Among Certain Obese Patients. A. J. Stunkard, W. J. Grace and H. G. Wolff. Am. J. Med. **19**:78-86 (July) 1955 [New York].

Of 25 obese patients between the ages of 18 and 56 years who were observed at a special study clinic of the New York Hospital, the eating patterns of 20 formed a distinctive syndrome characterized by nocturnal hyperphagia, insomnia, and morning anorexia. Such a pattern was not found in any of 38 persons (graduate and student nurses) without history of weight disorder. This night-eating syndrome was particularly prominent during periods of weight gain and life stress. An effective reducing regimen was not possible in its presence, and it appeared to be intimately related to the pathogenesis of obesity. Of the 20 patients reporting the syndrome only 2 were able to lose more than one-third of their initial excess weight, and in the past only 11 had ever succeeded in losing more than one-third of their excess weight. In 8 of these 11 patients this weight loss was accompanied by disabling emotional illness; only 3 achieved this without disabling complications. Of the five patients not reporting the syndrome, four had carried out successful weight

reduction programs in the past. The cases of 2 of the 20 patients are reported in detail, illustrating various aspects of the night-eating syndrome. In the first, that of a 43-year-old single woman, prolonged dietary restriction leading to a marked weight loss did not abolish the syndrome or prevent its intensification in a situation of life stress. In the second patient, a 29-year-old housewife, remission and exacerbation of the night-eating syndrome followed promptly on changes in her life situation and were associated with marked variation in the success of a dietary regimen. The cause of the night-eating syndrome has not been determined. Its characteristics do not reveal whether the mechanisms involved in its pathogenesis are primarily physiological or psychological. It is suggested that the syndrome represents a response to stress of a type peculiar to certain obese patients and that it is intimately related to the pathogenesis of their obesity.

Psittacosis (Ornithosis). O. Heggø and L. Kornstad. Tidsskr. norske lægefor. **75:**414-415 (June 1) 1955 (In Norwegian) [Oslo, Norway].

The case of psittacosis (ornithosis) described in a man, aged 48, infected from a sick parakeet, is believed to be the first instance of psittacosis to be reported from Norway. Treatment with Terramycin early in the course was effective, but the dosage was too low and more especially the treatment was terminated too soon, so that there was recurrence. Tetracycline (Achromycin) treatment on hospitalization gave excellent results. A somewhat higher antibiotic dosage than that applied in the usual bacterial infections is recommended in psittacosis, and to prevent recurrence the treatment should be continued for several days after the fever has subsided. The diagnostic importance of the complement fixation test is emphasized.

Paroxysmal Nocturnal Hemoglobinuria. G. W. Dean. Wisconsin M. J. **54:**335-339 (July) 1955 [Madison, Wis.].

The patient whose history is presented was a 60-year-old woman who was first hospitalized in 1952 because of recurrent bronchial asthma, which had bothered her at intervals since 1944. This responded to treatment but, in the course of her examination, she gave a history of anemia since the birth of her child in 1927 and of episodes of dark urine since 1940. In recent years these episodes had been accompanied by jaundice. On the basis of numerous laboratory studies a clinical diagnosis was made of paroxysmal nocturnal hemoglobinuria, which is a hemolytic anemia also known as the Marchiafava-Micheli syndrome. Its cause is unknown, but its basic defect is in the erythrocytes, which are hemolyzed by the patient's own serum as well as by the serum of a normal person. After leaving the hospital the patient continued to have severe attacks of paroxysmal nocturnal hemoglobinuria about every two months; these alternated with milder attacks. She could almost predict the appearance of the dark urine and would become apprehensive and discouraged. The hemoglobinuria always appeared after a period of sleep, day or night, and was usually preceded by indigestion. Some attacks were precipitated by an acute upper respiratory infection. On many of these occasions she was given transfusions of whole blood and of washed erythrocytes. There was no evidence of increased hemolysis after the transfusions. During one bout of paroxysmal nocturnal hemoglobinuria, the patient's blood was thoroughly studied. The results indicated that when the patient's red blood cells were treated with trypsin, they were susceptible to hemolysis by at least one factor present in normal serum as well as acidified serum, thus proving the diagnosis of paroxysmal nocturnal hemoglobinuria. In January, 1955, during another attack of upper respiratory infection, her condition deteriorated rapidly and she became deeply jaundiced and pallid. In spite of intensive treatment, she died. Autopsy revealed a mucopurulent tracheobronchitis, obstructive pulmonary emphysema, bronchiectasis, atelectasis of the middle lobe, cor pulmonale, chronic rheumatic valvulitis, cardiac cirrhosis of the liver, hemoglobinuric tubular nephropathy, and uterine leiomyofibromas. Once the hemolytic nature of an anemia has been recognized, steps must be taken to determine whether it is of the intrinsic type, in which there is an intracorpuscular defect, or whether it is of extrinsic type, in which hemolysis is caused by extracorpuscular agents such as chemicals, drugs, animal or vegetable poisons, infectious agents, isoagglutinins, or hemolytic immune bodies. The treatment of paroxysmal nocturnal hemoglobinuria is unsatisfactory; no cures have been reported.

Clinical Features of Porphyria. R. Pimenta de Mello. Hospital **47:**583-588 (May) 1955 (In Portuguese) [Rio de Janeiro, Brazil].

According to a purely clinical classification, porphyria may be classed as either congenital or intermittent acute. The disease is hereditary. Congenital porphyria renders the patient extremely sensitive to light. The disease starts with the appearance of blisters after exposure of the patient to light, followed sometimes by development of intractable urticaria. As the disease progresses, mutilation of the hands and parts of the face may occur. The urine of the patients is as red as wine. The intermittent acute form includes the (1) latent, (2) nervous, (3) abdominal, and (4) typical types of the disease. The latent type runs without clinical symptoms, but the patients eliminate uroporphyrin and coproporphyrin. The nervous type runs with paralysis and without abdominal symptoms, whereas the abdominal type is characterized by abdominal disorders without paralysis. The typical type presents both paralysis and abdominal disorders. The clinical diagnosis of intermittent acute porphyria is difficult, as the disease frequently simulates poliomyelitis, Landry's paralysis, progressive muscular atrophy, psychoses, and endocrinopathies. Employing an anatomicoclinical classification, one can class the disease as developing in the erythropoietic organs or in the liver. Erythropoietic porphyria is congenital and of the photosensitive type. Frequently it is associated with hemolytic anemia and splenomegaly. Anemia may improve after splenectomy. The hepatic form includes the nervous and abdominal intermittent acute type and the mixed type with late appearance of photosensitivity and either or both nervous and abdominal disorders. Independently of definite forms of porphyria, there are several intoxications, diseases, or conditions that cause secondary coproporphyrinuria, increased elimination of protoporphyrin and deuteroporphyrin, or presence of certain porphyrins in blood, tissue, or feces. The most frequent causal factors of either elimination or retention of porphyrins are intoxication with heavy metals; infections; rheumatic fever; pemphigus foliaceus; severe injury to the liver by certain diseases or by the use of barbituric derivatives or sulfonamide drugs; and intestinal hemorrhage. Chloroma tumors and necrotic tissues are almost entirely made up of protoporphyrin.

SURGERY

Re-Operation for Mitral Valve Disease. I. D. Baronofsky, C. Borden, R. E. Smith and J. L. Sprafka. Ann. Surg. **142:**32-36 (July) 1955 [Philadelphia].

Of five patients with mitral valvular disease in whom second mitral valvuloplastic procedures were undertaken, three were women 43 years of age and two were men aged 29 and 45 years respectively. They represented three types of patients with mitral valvular disease in whom reoperation was done. The first type was represented by a patient in whom previous exploratory cardiotomy had been undertaken in order to perform a mitral valvulotomy, which, however, was omitted because of the presence of significant regurgitation with little stenosis. In this patient, the electrocardiogram showed the presence of a 90 degree electrical axis toward the right as two years passed, suggesting stenosis of the mitral valve. This was verified at reoperation. A second patient with this type of disease is reported on. It is possible that patients with severe regurgitation for whom nothing was done at the initial operation may require surgical treatment at a later date for definite stenosis. With this in mind the authors continually observe patients in whom the diagnosis of mitral regurgitation has been made for evidence of changes in the electrocardiograms, roentgenograms, or murmurs, which suggest changing lesions. If such evidence is present, exploratory cardiotomy is carried out. The second type was represented

by a patient with mitral valvular disease in whom the presence of a large thrombus in the left auricle had prevented the fracture of the valve at the first operation. At the second operation on this patient, the surgeon's finger was inserted alongside the thrombus, which was well fixed to the atrial wall; an uneventful mitral valvulotomy was performed through the thrombus. Of the two remaining patients, one underwent fracture of the mitral valve after a finger dilatation had been carried out at the first operation. The fifth patient was one in whom an early attempt at the relief of mitral stenosis by one of the pioneers in the field had been made by removing a 1 cm. piece of valve. The patient improved after the operation, with a gradual reappearance of symptoms later. An excellent fracture of the anterior-lateral commissure was obtained at the second operation, increasing the size of the orifice to at least 3 to 4 cm. The last two patients presented cases of the third type, i. e., of the possible recurrence of mitral stenosis. It is suggested that reoperation in patients with an initial exploratory cardiotomy is perfectly feasible and should be attempted when warranted by the condition of the patient or by the subsequent laboratory or clinical findings.

Arterialization of the Coronary Sinus for the Revascularization of the Heart in Coronary Artery Disease: Mortality Study Following Circumflex Coronary Artery Ligation. A. A. Bakst, J. Costas-Durieux and C. P. Bailey. J. Thoracic Surg. **30:**57-65 (July) 1955 [St. Louis].

The technique of arterialization that Bakst and associates used on dogs was conceived and developed by others. It consists of a two-stage operation. At the first stage, through a left-sided thoracic incision, a free segment of external jugular vein is used to anastomose the aorta to the coronary sinus. Three to six weeks later, through a right-sided approach, the coronary sinus is partially ligated over a probe to 2 to 3 mm. Subsequently, the animals are used for physiological experiments. In an effort to study the pathological effects on the myocardial venous bed of elevating the pressure within the coronary sinus by arterialization, all the animals were killed after the physiological data were obtained. For the purposes of this comparative mortality report, those animals living for four hours after the ligation of the circumflex coronary artery were classified as survivals. The circumflex coronary artery was ligated in normal dogs, with a 90% six hour mortality rate and an eventual 100% mortality rate. Ligation of the circumflex coronary artery in dogs that have had previous miscellaneous cardiac surgery resulted in a 66% mortality rate. The 33% survival rate was not apparently related to either coronary sinus pressure or the amount of retrograde blood flow from the distal cut end of the ligated coronary artery. Ligation of the left anterior descending artery in similar dogs resulted in a 60% mortality rate. Two survivors demonstrated an accessory left anterior descending artery arising from the circumflex coronary artery. This accessory vessel probably accounted for an increase in the intercoronary arterial anastomotic flow that was adequate to protect the heart against ventricular fibrillation. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus was arterialized for one to two months resulted in a 20% mortality. It is of interest that in two dogs that died the heart beat well for one and two hours, respectively, after circumflex artery ligation. Ventricular fibrillation ensued in both animals within five minutes of occlusion of the graft. The authors were originally impressed by the protection afforded by the anastomosis of the aorta to the coronary sinus. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus had been arterialized for six months produced a 66% mortality. In this group, it was impossible to demonstrate any significant protection against ventricular fibrillation afforded by arterialization of the coronary sinus. This loss of protection was accompanied by a loss of retroperfusion of the myocardium, which was explained by a marked intimal proliferation and thrombosis within the major venous tributaries of the coronary sinus.

Late Results of Cardioangiological Interventions. L. Grossi. Minerva cardioangiol. **3:**203-206 (May) 1955 (In Italian) [Turin, Italy].

Grossi reports the late results on 70 patients with mitral stenosis and 10 with congenital heart disease, of whom all but two were referred by him to Prof. A. M. Dogliotti for operative intervention. The patients, who have been followed for from three months to two and one-half years, were selected on the basis of the absence of signs of an active rheumatic process and marked associated valvular lesions that contraindicated the operation, their general condition, the clinical and functional findings, and common sense. Commissurotomy was performed by means of Dogliotti's valvulotomy ring, and there were no operative deaths. One patient in whom the operation was performed on a bloodless heart after extracorporeal circulation had been established was in excellent health at the time of writing. The same is true of all the patients with the congenital condition (one each with pure stenosis of the pulmonary artery, stenosis of the aortic isthmus, valvular stenosis of the aorta, and aortopulmonary fistula; three with persistent ductus arteriosus; and three with tetralogy of Fallot). The sooner the operation is performed in patients with congenital heart disease the better the results; the most favorable time is when the patient is 6 to 10 years of age. Patients with mitral stenosis should be operated on when they are 20 to 30 years of age. Atrial fibrillation is not by itself a contraindication to the intervention. Nine women and four men of this series were suffering from total arrhythmia, and in three women and three men this was associated with signs of beginning decompensation. The intervention was successful and the postoperative course normal in all. At the time of writing the condition of the patients was excellent in 36, good in 31, and stationary in 12. The last named group consisted of patients who wanted the operation despite the author's advice. There was one death. It occurred in a patient who was greatly benefited by the commissurotomy but who died two years after the operation as the result of a sudden onset of acute pulmonary edema. A gain in weight of from 5 to 6 kg. was seen in most of the patients six months to one year after the operation. A flare-up of the rheumatic process was not observed in any of the patients; arthralgia of short duration was seen in only a few.

Metastatic Malignant Lesions of the Lungs Treated by Pulmonary Resection: A Report of 43 Cases. R. T. Hood Jr., R. P. McBurney and O. T. Clagett. J. Thoracic Surg. **30:**81-89 (July) 1955 [St. Louis].

This study comprises a review of 43 cases in which pulmonary resection was performed at the Mayo Clinic as a definitive procedure for a metastatic tumor of the lung. Twenty-three of the patients were male and 20 female. The relative similarity of incidence in the sexes is in contrast to the preponderance of males among the patients undergoing pulmonary resection for bronchogenic carcinoma. The study includes all the cases in which removal of metastatic pulmonary lesions was performed prior to 1952. The procedure has been increasingly utilized during recent years. Twenty-four patients did not complain of any significant pulmonary symptoms prior to removal of their metastatic tumors. The commonest complaint among the remainder was a cough. All patients presented roentgenologic evidence of a nonobstructive pulmonary mass lesion. The size of the lesions varied from 1 to 7 cm. in diameter. With two exceptions the lesions were solitary. The metastatic tumors arose from a wide variety of primary growths. In two instances the pulmonary metastasis was removed before the primary growth was excised. The interval between the two procedures in the remaining patients varied from 2 to 270 months. The value of pulmonary resection for metastatic tumors is difficult to assess solely on the basis of survival statistics. The degree of palliation afforded likewise was not measurable. Regardless of one's opinion of the value of resection of metastatic tumors, there exists the disquieting possibility that, in a patient previously treated for malignant disease, the pulmonary lesion may be unrelated to the earlier disease. The figures of 33% and 27%, respectively, for three and five year survival periods in this study, in themselves

respectable values, are of limited significance because of the small number involved. In general, the chances of cure are slightly greater for patients with small lesions that have been discovered more than three years following removal of the primary growth than for patients in whom the metastasis occurred earlier. The extent of the pulmonary resection did not in itself appear to be a factor in the length of survival. Conservative resections may have more applicability for metastatic tumors than for bronchogenic carcinoma, since the former are less likely to spread by lymphatic channels. The results of this study seem to justify the continuance of pulmonary resection for metastatic malignant lesions of the lungs. The palliation offered is noteworthy, and the prolongation of life is frequently gratifying.

Surgical Treatment of Localized Emphysematous Disease. W. Weisel. Ann. Surg. **142:**17-27 (July) 1955 [Philadelphia].

Of 40 patients with severe localized, cystic, pulmonary emphysematous disease, 17 refused surgical therapy at the time of their initial evaluation, while 23 underwent surgical treatment. Follow-up inquiries of the 17 patients revealed that 9 had died of their disease, 6 had shown progression of lesion and disability, and 2 were unchanged. This is ample evidence of the high morbidity and mortality of this disease when untreated. In contrast 22 of the 23 patients operated on during the same period are alive and have been markedly improved. Of the 23 patients, 19 were adults and 4 were newborn infants. There was one death in the surgically treated group that occurred in a 64-year-old man on the 14th postoperative day; death resulted from a large pulmonary embolus, which apparently originated in the right saphenous vein. The principal indications for surgical treatment were the complications of the lesions, namely: rupture with pneumothorax and hemorrhage and overdistention with marked compression of normal lung tissue resulting in respiratory embarrassment. The surgical technique consisted of excision or external decompression, but whether the one or the other was used was not an important factor in the end-results. Because of lessened morbidity, the author prefers small excisions of the lesion or pathologically involved area of the lung. External decompressive surgery was employed only in patients for whom thoracotomy and excision were considered to carry too high a risk. The change in respiratory physiology after surgical treatment was remarkable, and the maximum breathing capacity usually showed the greatest recovery. Most of the patients showed a return to normal of the deranged ventilatory functions after surgical therapy; in addition, follow-up studies for more than 24 months after the operation revealed no evidence of recurrence or progression of emphysema in the author's patients.

Blood Values in Gastric Carcinoma: Preoperative and Postoperative Blood Volume, Total Circulating Hemoglobin, and Serum Protein in Patients with Gastric Carcinoma. B. Fretheim. A. M. A. Arch. Surg. **71:**14-23 (July) 1955 [Chicago].

Fretheim examined the hemoglobin percentage, the total hemoglobin, the blood volume, the red blood cell volume, and the plasma volume and also examined the serum protein concentration and the total circulating serum protein preoperatively and postoperatively in patients with gastric carcinoma. These patients generally have a considerable reduction of hemoglobin percentage, total hemoglobin, and red blood cell volume, as well as a moderate reduction of blood volume. The serum protein concentration is distinctly reduced, but, owing to slight or no reduction of plasma volume, the total circulating serum protein is only slightly reduced. To bring the patients up to normal values preoperatively, considerably more blood has to be supplied than can be calculated from the values found, because a large portion of the red blood cells given are hemolyzed and relatively still greater amounts of serum protein and fluid leave the blood stream again. Postoperatively, the values are again thrown out of balance. The loss of blood during gastrectomy and the following 24 hours is considerably greater than that measured by the weighing of compress blood, usually several times greater. The hemoglobin percentage and the serum protein concentration are poor guides to the amount of blood lost, as they reach the lowest value two days or several days after the loss of blood. The best guide is provided by measurement of the total hemoglobin and the red blood cell volume. The serum protein and the plasma volume are more mobile: they pass more easily back and forth between blood vessels and tissues, giving a less reliable picture of the loss of blood.

Two Hundred Cases of Exeresis for Pulmonary Tuberculosis. E. Cornet, M. Dupont and Fertil. Semaine hôp. Paris **31:**2360-2364 (July 2) 1955 (In French) [Paris, France].

An analysis is made of 200 consecutive patients with pulmonary tuberculosis treated by surgical excision. The ratio of men to women in the series was 110:90. The authors' experience with patients with more advanced disease who have to be treated by collapse therapy has been that the percentage of men is much greater. This is explained by the fact that women consult physicians earlier in the course of their disease and follow instructions more faithfully than do men. Twenty-six per cent of the 200 patients required pneumonectomy, which fact shows the severity of hospital cases as opposed to sanatorium cases. Of 21 patients with severe parenchymal involvement necessitating pneumonectomy, 16 had disease of pleural origin. In this series there was predominance of lesions of the superior right lobe and a large number of cases of retracting lobitis. Of the exereses, 22.5% were carried out after unsatisfactory collapse therapy. The mortality in the series was 14, or 17% of the patients with pneumonectomy, 5% of those with lobectomy, and 0% of those with segmentectomy. On the whole, the long-term resolution of postoperative complications was satisfactory.

Gastric Carcinoma Treated with Abdominothoracic Total Gastrectomy. B. Fretheim. A. M. A. Arch. Surg. **71:**24-32 (July) 1955 [Chicago].

The author reviews observations on 178 patients with gastric carcinoma who were subjected to total gastrectomy by the abdominothoracic approach. The series included 46 women and 132 men. There were 31 operative deaths (17.4%); in 11 of these patients death was due to infection in the operative field. Other surgical fatalities were caused by pneumonia, lung emboli, shock, cardiovascular complications, incarceration of the jejunal loop, intraperitoneal hemorrhage, and acute pancreatic necrosis. Extensive metastases caused death in three patients three or four weeks after operation. Nonfatal postoperative complications included thromboemboli, sutural insufficiency, and subphrenic abscess. More than half of the patients subjected to total gastrectomy died within one year after the gastrectomy; one-sixth survived three years; and only one in nine patients survived more than five years. The patients who died within one year after total gastrectomy generally had severe complaints in the form of anorexia, nausea, and vomiting. Their weight did not increase, they were unfit to work and generally had considerable pain. Therefore, in these patients the operation was not really indicated. The majority of patients who survived more than one year were so comfortable that the intervention must be regarded as having been justified. Total gastrectomy for gastric carcinoma is recommended in all cases in which the neoplasm has spread to such an extent that it is not possible to resect the stomach 5 cm. to both sides from the site of the carcinoma and in which radical surgery is possible. In carcinoma of the type of muciparous scirrhus, the macroscopical delimitation is difficult and the indication for total gastrectomy consequently greater. Total gastrectomy should not be resorted to as a palliative measure. A combined abdominothoracic incision permits better access and, thereby, a greater possibility of radical block dissection than an abdominal or thoracic incision. The operative mortality and the postoperative complications are so much higher in total gastrectomy than in subtotal resection, and the postoperative complaints, digestive disturbances, and reduced general condition and capacity for work are so much greater that subtotal gastrectomy is preferable when it can be carried out according to radical principles.

Surgical Aspects of Splenic Disease. W. H. Cole, J. D. Majarakis and L. R. Limarzi. A. M. A. Arch. Surg. **71**:33-46 (July) 1955 [Chicago].

Cole and co-workers discuss observations on 137 patients in whom splenectomy was performed. Although it has been known for years that splenectomy yields very good results in familial hemolytic anemia and thrombocytopenic purpura, it has not been until the past few years that the authors have learned that good results are often obtained in acquired hemolytic anemia and secondary purpura. The indications for operation in these latter two diseases are not well defined, although the presence of some phase of hypersplenism represents the clearest indication. Accordingly, much more experience is needed in these diseases having borderline indications. In the reviewed series of 137 patients undergoing splenectomy for splenic disease, 54 had hemolytic anemia. Of this group, 40 were classified as hereditary and 14 as acquired. The important differentiating feature in these two groups is the fact that in the former there is an increased mechanical and osmotic fragility of the red blood cells, whereas in the latter the red blood cell fragility is normal. Splenectomy yielded good results in all except one of these patients with hereditary anemia. In the acquired group (in which Evans and associates have found autoantibodies, agglutinins, or hemolysins) the authors performed splenectomy on eight patients but obtained good results in only three. Splenectomy was done in 41 patients with thrombocytopenic purpura. Good results were obtained in 31 of 35 classified as idiopathic; in 6 cases classified as secondary purpura, results were good in only 3. The 35 patients who were classified as having hypersplenic states included those with primary splenic neutropenia and pancytopenia, Banti's syndrome, and Felty's syndrome. The authors obtained good results in all of the first group. For the past several years they have not performed splenectomy (one exception) in Banti's syndrome unless a portacaval or splenorenal shunt was performed at the same time. Results of the shunt operations are not included in this series. They have been able to follow all of their 22 patients having splenectomy for Banti's syndrome. There were five operative deaths in this group (22.7%); this is a higher rate than in any other group. Four of the five operative deaths were due to postoperative hemorrhage. Eight of the 17 patients surviving operation have died since leaving the hospital, 7 of hemorrhage from esophageal varices. Good results were obtained in four of eight patients with Felty's syndrome. The authors performed splenectomy for Gaucher's disease in only one patient; she is alive and well six years after splenectomy. The mortality rate in the entire series was 7.3%. It is significant that the mortality rate was lowest in the groups (hereditary hemolytic anemia and idiopathic thrombocytopenic purpura) having the best symptomatic results after splenectomy.

Total Right Hepatic Lobectomy for Cancer of the Gallbladder: Report of Three Cases. G. T. Pack, T. R. Miller and R. D. Brasfield. Ann. Surg. **142**:6-16 (July) 1955 [Philadelphia].

Since the prospect for cure of all patients with gallbladder cancer is seldom greater than 2 to 3% and since there has been only one five-year cure of gallbladder cancer achieved by cholecystectomy in the history of the Memorial Cancer Center in New York, the authors feel justified in suggesting that a total right hepatic lobectomy should be considered as the primary initial method of treatment for this condition. The more adequate exposure afforded by a right thoracoabdominal incision has made this operation safer and easier to perform. The technique of total right hepatic lobectomy is described in detail. Two of the three patients reported on, a 64-year-old woman and a 53-year-old woman, had undergone previous surgical treatment for cancer of the gallbladder that made total right hepatic lobectomies difficult (one having undergone simple cholecystectomy and intensive postoperative irradiation). Two of the three patients, the 64-year-old woman and a 65-year-old man, had extensive metastases to periportal, hepatoduodenal, and retroduodenal lymph nodes, which made the dissections arduous and the prognosis unfavorable. The older of the two female patients survived total right hepatic lobectomy for five and a half months. She received immediate postoperative high caloric and high protein feedings, which the authors consider an essential protection and necessary aid for the small remaining liver substance in the left lobe. The remarkable ability of the liver to regenerate was shown in this patient on autopsy, since the residual left hepatic lobe that contained no metastatic cancer had undergone regenerative hyperplasia so that its ultimate weight was almost 500 gm. In the male patient the technical difficulties were great because of the huge conglomerate lymph nodes obscuring the portal fissure. Because of ileus this patient did not receive immediate postoperative high caloric and protein feedings; he died on the seventh postoperative day. The left lobe of the liver weighing 400 gm. was estimated to be 50% larger than at the termination of the operation. The 53-year-old woman received a replacement of 3,500 cc. of blood. The postoperative course was uneventful. Oral feedings were started on the fifth postoperative day, and because of anorexia, cortisone was subsequently added in doses of 100 mg. daily. Convalescence thereafter was rapid. The remaining 20% of the liver resident in the left lobe was adequate and the patient's hepatic function has remained well within normal limits. The longest survival after right total hepatic lobectomy observed by the authors is for two years; this male patient, now weighing 90.7 kg. (200 lb.) and working, had a huge granuloma involving the entire right lobe.

Capillary Hemangiomas of the Skin. J. J. Modlin. Surgery **38**:169-180 (July) 1955 [St. Louis].

Between 1947 and 1954, 29 girls and 13 boys with 52 capillary hemangiomas were examined and followed at regular intervals. Twenty-nine patients were followed for three or more years. Although 44 hemangiomas were noted within one week after the child was born and despite the fact that in 48 hemangiomas a history of rapid growth was obtained, only two children were brought for examination before the age of 2 months. With the exception of one 6-year-old boy, all the children were less than two years old at the time of their initial examination, and no capillary hemangiomas were noted in adults. Two patients, each of whom had one capillary hemangioma, were lost to follow-up. Of the remaining 50 capillary hemangiomas, 39 did not receive any treatment and 11 were surgically excised. Twenty-four of the 39 had completely disappeared at 1 to 4 years of age of the patient, and 14 were showing definite and continuing regression at the time of the author's report. In none of the 42 patients was there serious hemorrhage or threat to life, and there was no case of the so-called metastasizing hemangioma or other evidence of malignant tumor of vascular origin. It is emphasized that ideal treatment of infantile capillary hemangiomas consists of destruction or surgical excision early in life before the characteristic rapid growth occurs. The fact remains, however, that many lesions will be seen after enlargement has occurred, and it appears that these may be followed closely without treatment. It is probable that judicious restraint may produce a much better end-result than that obtained by well-meant but vigorously applied destructive methods of treatment. There is need for additional reports of conservatively managed cases in order to determine the true natural history of these lesions.

Chronic Appendicitis. H. W. Gallagher and A. E. M. Stevenson. Ulster M. J. **24**:52-57 (May) 1955 [Belfast, Ireland].

A review of the literature indicates that authorities are not in agreement about the entity chronic appendicitis. The authors reviewed 400 consecutive patients who had been operated on for appendicitis in an attempt to clarify their own ideas about chronic appendicitis. All patients were operated on in Banbridge Hospital during a three and a half year period, beginning in mid-December, 1946. An attempt was made to trace all surviving patients after an interval of at least one year from the time of operation. Two hundred forty-one patients were interviewed and reexamined. Seventy-five others replied to a questionnaire. The patient's general practitioner sent a report in a further 51 cases. There were three postoperative deaths, and 30 patients could not be traced. A follow-up inquiry was made about the occurrence of chronic or recurrent abdominal symptoms before and after the operation. Of the 367 patients who

were followed up, 222 had persistent or recurrent abdominal symptoms before the illness for which appendectomy was performed. Patients with recurrent abdominal symptoms fell into one of four groups, which can best be described as recurrent appendicitis (46 cases), recurrent abdominal colic (45 cases), recurrent or persistent right-sided pain (94 cases), and dyspepsia (37 cases). The authors stress the following points: 1. Recurrent appendicitis is a well-recognized condition and should not be referred to as chronic appendicitis. 2. Recurrent or persistent right-sided pain is undoubtedly due, in many instances, to lesions of the appendix and not infrequently precedes acute appendicitis in which the symptoms may remain right-sided. In some cases, removal of a normal appendix cures the patient, and it is suggested that cure may, at times, be psychological rather than physical. The term chronic appendicitis should be applied to cases of right-sided pain for which no other cause is found. 3. Recurrent abdominal colic frequently precedes an attack of acute or subacute obstructive appendicitis. Only rarely can the cause of the colic be diagnosed before the onset of localizing symptoms or signs. The authors feel that the term "chronic appendicitis—recurrent colic" could be used for this type of case. 4. Dyspepsia alone may precede an attack of appendicitis and sometimes follows an attack of appendicitis treated conservatively. Appendectomy should never be advised for dyspepsia unless there is other evidence that the appendix is abnormal. These cases could be termed "chronic appendicitis—reflex dyspepsia."

NEUROLOGY & PSYCHIATRY

Behavior of Chimpanzee-Avirulent Poliomyelitis Viruses in Experimentally Infected Human Volunteers. A. B. Sabin. Am. J. M. Sc. **230**:1-8 (July) 1955 [Philadelphia].

Poliomyelitis is generally more severe in adults than in very young children. Immunization procedures should avoid creating a large adult population without resistance to paralytic poliomyelitis. Natural inapparent infection in childhood is the process by which the vast majority of the world population acquires immunity to poliomyelitis. Sabin attempted to determine by quantitative methods the comparative behavior in human beings of the same culture fluids that had been studied in monkeys and chimpanzees. Strains of each of three types of poliomyelitis virus, which were segregated in monkey kidney tissue culture and shown to be avirulent for monkeys by intracerebral and extraneural routes and for chimpanzees even after inoculation into the gray matter of the spinal cord, were administered to 30 human volunteers. These men were 21 to 30 years old and possessed no demonstrable antibody for the poliomyelitis viruses they received. Twenty-six men received types 1, 2, or 3 virus in doses varying from 0.001 cc. to 1 cc. in a teaspoonful of milk by mouth. The others who were without antibody for all 3 types received the type 3 virus intramuscularly. There was no virus multiplication in the mouth or anterior portion of the tongue. With the larger doses the viruses multiplied in the throat as well as in the lower alimentary tract, while after ingestion of the smaller doses no virus was found in the throat even when it continued to be excreted in the feces for four to six weeks. The smallest amount, 0.001 cc., containing approximately 10,000 tissue culture doses of virus, initiated an immunogenic alimentary infection in all human volunteers. This indicated that the human alimentary tract is more readily infected than that of chimpanzees, and chimpanzees are more readily infected by mouth than monkeys, while the reverse obtains for the nervous system, monkeys being much more susceptible than chimpanzees. No viremia was found in any of the volunteers, and there was no evidence of illness. Amounts of type 3 virus that readily produced infection after ingestion failed to do so after intramuscular injection except in one man, in whom the virus localized in the lower alimentary tract. The antibody response, which occurred in varying degree in different men, was of a higher order in those with extensive viral multiplication in the throat. No harmful mutants were found after multiplication in the alimentary tract. Similar studies are now in progress with naturally occurring, intracerebrally-avirulent types 1, 2, and 3 poliomyelitis viruses that were recovered from healthy children who had no contact with clinical cases of poliomyelitis. Studies on immunization of larger numbers of human beings are being postponed until comparative studies have indicated the best attenuated strains to use for this purpose.

Poliomyelitis and Tonsillectomy: A Report of the Medical Research Council Committee on Inoculation Procedures and Neurological Lesions. Lancet **2**:5-10 (July 2) 1955 [London, England].

The first part of this report is concerned with recent tonsillectomy in its relationship to poliomyelitis. Between March, 1951, and December, 1953, reports were received by the Medical Research Council in Britain of 103 children up to 18 years of age in whom poliomyelitis developed within 91 days after tonsillectomy. Sixty-one (59%) had symptoms from 1 to 21 days after tonsillectomy. The concentration was most evident in the bulbar and bulbospinal groups where 44 (79%) occurred from 1 to 21 days after operation, compared with 38% of the spinal cases and 31% of the nonparalytic cases. Most cases occurred in the principal epidemic period, but the same pattern was seen in epidemic and nonepidemic seasons. Tonsillectomy as practiced at present added relatively few to the total number of cases of poliomyelitis reported during the study, but tonsillectomy should continue to be restricted in any area where the disease is unusually prevalent. The inquiry into the relationship between poliomyelitis and more remote tonsillectomy revealed that between mid-1951 and November, 1953, records were obtained in selected areas of England and Wales of the history of tonsillectomy at any time before the onset of paralytic poliomyelitis in 51 patients under 5 years of age and 203 patients 5 to 15 years of age. Histories were similarly obtained for the same number of matched controls. Only 2 of the patients and none of the controls under 5 years of age had had their tonsils removed. In the 5 to 15 year age group, 72 (35%) of the patients had undergone tonsillectomy compared with 44 (22%) of the controls. The differences between patients and controls were greatest in the group with bulbar paralysis, intermediate in the group with bulbospinal paralysis, and least in the group with spinal paralysis. In the bulbar and bulbospinal groups, most patients had had their tonsils removed at least one year and often five or more years before the onset of poliomyelitis. The results indicated that persons whose tonsils had been removed were more likely to develop the bulbar form of poliomyelitis than those who had not had the operation, even if years had elapsed between the removal of the tonsils and the onset of poliomyelitis.

Acute Anterior Poliomyelitis and Twinning: Clinical Considerations on Two Pairs of Twins. G. Dadone. Minerva nipiol. **5**:44-49 (March-April) 1955 (In Italian) [Turin, Italy].

Acute anterior poliomyelitis occurred on the same day in a brother and sister who were three-year-old dizygotic twins. In both patients the same groups of muscles were involved by the paralysis in the same extremities, suggesting not only a specific constitutional tendency to become ill but also a sensitivity that seemed to be specific for a particular area. The onset of acute anterior poliomyelitis on the same day was also observed in four-year-old dizygotic twin brothers in whom the paralysis did not affect the same groups of muscles. Both pairs of twins had received prophylactic vaccinations against diphtheria and smallpox three months and one month, respectively, before the onset of poliomyelitis. Many workers have reported a relationship between inoculations of prophylactic vaccines and the onset of poliomyelitis after the latter was observed to arise in the extremity in which the injections had been given. This was not, however, the case with these two sets of twins. It is advisable not to vaccinate persons during an epidemic of poliomyelitis in order to avoid the possibility of favoring the onset of the disease. Dadone states that there is a constitutional tendency to contract poliomyelitis. In these patients there was almost a chronological identity in the onset of the disease. He suggests that, whenever poliomyelitis develops in one member of a set of twins, prophylactic measures be taken for the other member.

Behavior of Chlorine in Treated Tuberculous Meningitis: Its Prognostic Value. C. Marini and M. P. Prodi. Clin. pediat. **37:**369-377 (May) 1955 (In Italian) [Bologna, Italy].

Children with tuberculous meningitis were studied to determine whether there is a relationship between the chlorine values of patients with this condition and its clinical course. The chlorine in the cerebrospinal fluid, blood, and 24-hour urine specimen was determined at the time of admission, every eight days during the severest course of the disease, and less often thereafter until the clinical findings and cerebrospinal fluid returned to normal. The results indicated that a progressive diminution of chlorine in the cerebrospinal fluid and the blood together with a heavy renal loss of it is generally present in patients in whom the outcome will be fatal. If however the patient's body retains chlorine by decreasing the urinary excretion of it and maintaining a normal blood level of it, the prognosis can be favorable, even if the initial condition was clinically severe. The study proved that the determination of the ratio between chloremia and chloruria is, in addition to that of the cerebrospinal fluid level, a valuable prognostic tool. While the latter reveals the severity of the local alterations, the former indicates the reactive capacity of the patient and his possibilities of responding favorably to treatment. The chloremia-chloruria ratio is more important and more useful than the chlorine cerebrospinal fluid value and it can give useful therapeutic indications. In fact, patients with tuberculous meningitis whose renal excretion of chlorine is marked, despite low blood levels of it, can be given orally or parenterally large doses of sodium chloride and its retention in the organism can be facilitated by administering desoxycorticosterone acetate (DCA), corticotropin (ACTH), or cortisone. This combination is suggested on the basis of the hypothesis that a state of hypercorticalism can favorably influence the degree of resistance of the patient to the tuberculous infection.

Analysis of 200 Patients with Closed Trauma of the Skull. A. Verjaal. Nederl. tijdschr. geneesk. **99:**1799-1806 (June 18) 1955 (In Dutch) [Haarlem, Netherlands].

The cerebrospinal fluid of 200 unselected patients admitted to a general hospital with closed trauma of the skull was examined within 24 hours of the trauma whenever possible, and an electroencephalogram was made within a week of the accident. The cerebrospinal fluid of most of the patients who seemed to have an uncomplicated concussion of the brain contained blood, and the electroencephalogram showed considerable irregularities. The author feels that, in view of the histological condition, cerebral contusion would be a more appropriate diagnosis in these patients than concussion of the brain. Unless there were definite contraindications, all these patients were permitted to move about as much as they wanted. Patients with uncomplicated concussion of the brain were permitted free movement after a few days. The results of this active treatment seemed favorable.

Canicola Fever with Neurological Complications. J. E. Middleton. Brit. M. J. **2:**25-26 (July 2) 1955 [London, England].

The patient with canicola fever whose case is described was a man, aged 42, who had been well until eight days previously when he noticed a tightness in the chest that was increased by deep breathing. Two days later a severe retro-orbital headache with photophobia developed, and these symptoms persisted. A week before he became ill he had purchased a puppy. The animal had discharging eyes and later developed frequency of micturition and weakness of the hind legs. When the patient was hospitalized on the ninth day of his illness, both conjunctivae were injected and there was a scanty morbilliform rash on his body. On the 10th day his condition was unchanged except that he had loose watery stools. He was given chlortetracycline, 1 gm. orally every six hours, together with vitamin B complex. On the 12th day his diarrhea and other symptoms had subsided, and the meningism, rash, and conjunctivitis had almost gone. His temperature was normal. The chlortetracycline was reduced to 0.5 gm. every six hours. He was discharged as well on the 23rd day. Absorption tests showed evidence of infection with Leptospira canicola. Convalescence was complicated by a cervical radiculitis. The right serratus anterior and right diaphragm were paralyzed, and there was transient paresis of the left thumb. Initial subjective sensory changes over the left forearm were also present. Recovery was complete 18 months after the onset of the illness. The neurological signs and symptoms in this case pointed to bilateral patchy involvement of either the cervical segments of the spinal cord or its roots or nerves, and the clinical picture resembled very closely the shoulder-girdle syndrome or neuralgic amyotrophy described by Parsonage and Aldren Turner in 1948. The author presumes that infection with Lept. canicola gave rise to an antigen-antibody reaction that presented as the shoulder-girdle syndrome. Agglutination tests on the animal's blood likewise indicated infection with Lept. canicola, but none of its other human contacts showed signs of canicola fever.

GYNECOLOGY & OBSTETRICS

Use of Hypotensive Agents in Treatment of Preeclamptic Toxemia of Pregnancy. R. R. de Alvarez. Obst. & Gynec. **6:**55-62 (July) 1955 [New York].

Since the renal hemodynamics seen in the hypertensive states of pregnancy seem to be intimately associated with vasoconstriction, the antihypertensive agents selected for study by de Alvarez were those designed to reduce renal resistance to blood flow. Twenty-one patients in whom eclamptic toxemia developed during pregnancy were selected for study; in 15, preeclampsia developed in the absence of underlying disease; and the remaining 6 had essential hypertension upon which various degrees of preeclampsia were superimposed. All patients were hospitalized, and studies were begun on the renal hemodynamics after complete bed rest for 24 hours. Three hypotensive agents were studied, all of which were given intravenously. Fourteen patients were studied following the use of protoveratrine, a Veratrum viride preparation. Nine of these patients had preeclamptic toxemia alone, while the remaining five had preeclampsia superimposed upon benign essential hypertension. Four patients were given hydralazine (Apresoline) hydrochloride. The remaining three patients were treated with Serpasil (Rauwolfia serpentina). This last drug produced the fewest side-reactions; however, its use results in increased renal blood flow similar to the effect of hydralazine hydrochloride. The marked tachycardia or precipitous drops in pressure noted with Apresoline are not present following the administration of Rauwolfia preparations. Hypotensive drugs should supplement rather than replace good medical and obstetric therapy in pregnancy toxemia.

Adenocarcinoma of the Endometrium: An Evaluation of Factors Influencing Prognosis and an Outline of a Plan of Therapy Based on These Factors. G. A. Webb, A. J. Margolis and H. F. Traut. West. J. Surg. **63:**407-419 (July) 1955 [Portland, Ore.].

Adenocarcinoma of the endometrium has long been relegated to a position of lesser importance in comparison with cervical malignancies, mostly because of the generally accepted view that the prognosis of adenocarcinoma of the endometrium is excellent in relation to the prognosis of squamous cell carcinoma of the cervix. The ratio of instances of adenocarcinoma of the endometrium to squamous cell carcinoma of the cervix has changed from 1:6 to 1:3 in the past two decades. One reason for this increase in fundal carcinoma may be the increasing longevity of the population, and it is also interesting to speculate whether perhaps the use of estrogens by growing numbers of the aging female population might be partly responsible for this increase. This paper reviews the patients with a diagnosis of adenocarcinoma of the endometrium seen in the University of California Hospital or its Outpatient Clinic during the years from 1915 through 1948. Cases not confirmed by histological examination as well as those of metastatic carcinoma of the

V 1
195

uterus were excluded. There were 261 authenticated cases. Jan. 1, 1949, was set as the cut-off date, so that the five year period of survival could be estimated in all patients. Two patients were lost to follow-up and two others died, so that there remain 257 patients. The five year survival in this group was 51%. The percentage of five year survival in adenocarcinoma of the endometrium has remained stationary for the last 25 years, whereas during the same period the five year survival rate from cervical carcinoma has increased threefold. Factors influencing the prognosis of adenocarcinoma of the endometrium are discussed. A plan of therapy employing surgery and irradiation (x-rays and radium) is suggested. The preoperative diagnosis should be made (1) by examination under anesthesia and (2) by differential curettage. The choice of treatment should then be determined by the size of the uterus, the invasiveness and type of the tumor, the presence of metastases, and also the patient's general condition.

Thrombosis and Embolism After Extensive Gynecologic Operations. W. Soergel. Zentralbl. Gynäk. **77:**561-571 (No. 15) 1955 (In German) [Leipzig, Germany].

Soergel reviewed the records of 2,000 women who had undergone extensive gynecologic operations during the period from March, 1951, to February, 1954, with regard to the problem of thromboembolism. During the last 18 months of this period the anticoagulant ethyl biscoumacetate (Tromexan) was used for prophylaxis and therapy. It has been ascertained that the hyperprothrombinemia that exists immediately after the operation subsides gradually on the first and second day after the operation, but then it rises again and reaches a new peak on about the sixth postoperative day. This second peak corresponds with the observation that postoperative embolism is most likely on the fifth or sixth day after operation. The author began Tromexan administration for prophylactic purposes on the fourth postoperative day. He usually discontinued it on the 10th or 12th day at first, but later not until the 12th or 14th day. The use of Tromexan is contraindicated in patients with disturbances in the blood coagulation, with liver disease, with renal insufficiency, with considerable hypertension, and in pregnant women. Prophylactic treatment with Tromexan was not used in all patients routinely but only in 201 selected from among 1,000 women. Later it was found that the selection for prophylactic therapy had not been sufficiently wide, in that all those who died of pulmonary embolism and all but four of those who experienced thrombosis and infarcts had not received prophylactic Tromexan therapy. With regard to the therapeutic use of Tromexan, the author found that treatment time in the phlebothromboses was reduced by about one-third; the subsidence of edema and the recanalization of the veins also was more rapid; extension to the femoral vein was often prevented; and many of the late sequelae of phlebothrombosis were prevented. Severe hemorrhages that could be ascribed to no other cause than the Tromexan were observed in eight cases. The author concludes that Tromexan is valuable in the prophylaxis as well as in the treatment of postoperative embolism. He still prefers selective to routine prophylactic treatment with Tromexan. He feels that the following groups should be protected against thromboembolism by the prophylactic administration of Tromexan: those whom Rehn regards as the thromboembolic type; those who have been operated on for myoma or carcinoma, or who have severe inflammations; those over 45 on whom plastic repair is done; those who are exhausted physically and mentally; those with cardiovascular defects; all those who are over the age of 50; those with varicosities; those who had a tubal abortion; and all patients in whom a hyperprothrombinemia of over 80% is established on the third day after operation. Atmospheric factors should also receive attention in that hyperprothrombinemia is particularly dangerous when the barometric pressure decreases rapidly. Other important prophylactic measures include prevention of infection, bandaging the legs before operation in patients with varicosities, continuous blood pressure control after operations, breathing exercises facilitating the suction effect of the diaphragm, elevating the foot of the bed, and early rising after operation. The hemorrhage that might be brought on by coumarin preparations is a lesser threat than is embolism.

Prophylaxis of Thromboembolism in Surgical Gynecology with a Coumarin Derivative and Its Antagonist Vitamin K_1. H. Röttger. Zentralbl. Gynäk. **77:**571-577 (No. 15) 1955 (In German) [Leipzig, Germany].

Since an oil-soluble vitamin K_1 preparation has become available that will normalize the coagulation process within a few hours, it has been possible to use so-called super Dicumarol preparations in the prophylaxis and therapy of thromboembolism. This report is concerned with 3-(1'-phenylpropyl)-4-oxycoumarin, which has been introduced into clinical use under the term Marcumar. It differs from bishydroxycoumarin (Dicumarol) in that it contains only one oxycoumarin group. The author comments on the action mechanisms of this and other coumarin derivatives as well as of their antagonist vitamin K_1. On the basis of experiences with Marcumar in the prevention of thromboembolism after gynecologic and obstetric operations, the author stresses particularly the protracted and uniformly persistent action of this coumarin derivative, which results in a uniform reduction of the coagulation factors and in a leveling off and is therefore particularly suited to prolonged prophylaxis and therapy. The thromboplastin time does not have to be determined so frequently. If the values should go too low, as the result of excessive dosage or hyperreaction on the part of the patient, the coagulation mechanism can be quickly restored with the aid of the oral administration of the oil-soluble vitamin K_1 preparation.

Female Vaginal Cycle: Review and Normal Cytological Material. Bibl. læger **146:**213-246 (Nov.-Dec.) 1954 (In Danish) [Copenhagen, Denmark].

The author's investigations, in agreement with earlier investigations, confirm that there is a well-defined, cytologically demonstrable vaginal cycle, which can, according to the varying relations between the different blood cell types, their morphology, and their grouping, together with the presence of erythrocytes and leukocytes, be divided into different phases of which the ovulation phase is the most striking. The most constant factor from cycle to cycle is the eosinophilia. If the daily variation in eosinophilia is shown in curves, characteristic curves appear with a maximal plateau about the time of ovulation and a steep fall in the postovulatory phase. Comparison between the average eosinophilia curve and the estrogen excretion curve shows clear agreement.

Problems Associated with Treatment of Cancer of the Endometrium. J. M. Sadler. Am. J. Obst. & Gynec. **70:**17-28 (July) 1955 [St. Louis].

The use of preoperative irradiation in the form of intrauterine radium followed by total hysterectomy and bilateral salpingo-oophorectomy in six to eight weeks has been advocated by many as the method resulting in the best survival rate in women with cancer of the endometrium. This study was undertaken to evaluate the use of radium in this manner. It was found that the insertion of radium sources into the uterine cavity is inaccurate as to placement and distribution. There is danger of perforation of the uterus and of spread of infection or tumor cells. Five thousand milligram hours of intrauterine radium do not deliver enough gamma roentgens or "tissue" roentgens to important points in the pelvis to be cancerocidal. A method of staging of adenocarcinoma of the endometrium is presented, based on operative findings and pathological study of removed tissue. A review of 99 cases revealed residual carcinoma in 38% of stage 1 and 88% of stage 2 lesions after preoperative intrauterine irradiation with radium. Cancerous involvement of the myometrium was not influenced by irradiation of this type and the recurrence rate in stage 2 growths was 29%. The lowest recurrence rate was obtained with surgery alone. Vaginal hysterectomy was superior to radium alone in a few selected poor-risk patients. The results with x-ray and radium therapy alone were poor. The few cases presumably cured by this method may have been superficial lesions of low-grade malignancy or of the polypoid type with the curet being largely responsible for eradicating the tumor. Surgery has proved to be the best method of therapy for this disease in the author's clinic. A more extensive operation is described and is being utilized. By em-

ploying this operation, which includes pelvic lymphadenectomy, the author hopes to reduce the number of recurrences in patients whose disease extends beyond the limits of the uterus.

The Diagnosis and Prognosis of Female Genital Tuberculosis. B. P. Zummo, H. Sered and F. H. Falls. Am. J. Obst. & Gynec. **70:**34-43 (July) 1955 [St. Louis].

Studies made at Cook County Hospital in Chicago convinced Zummo and associates that tuberculosis of the female genital tract is not so rare as is generally believed. Since January, 1948, they made a study of 64 patients with genitoperitoneal tuberculosis; 52 patients were operated on, and 12 were not. Of the surgical group, 36 cases were correctly diagnosed before surgery, while 16 were misdiagnosed and initially operated on for other conditions than genital tuberculosis. Of this latter group, 11 were subsequently reoperated on, after a course of drug therapy. Genital tuberculosis, silent or active, may be one of the most difficult gynecologic diagnoses to make, because of the manner in which it masquerades as other gynecologic conditions. In this series, 25 patients gave evidence of pulmonary involvement; 10 patients showed evidences of gastrointestinal abnormalities, of which seven were suggestive of tuberculous involvement. Endometrial and cervical histological biopsies are useful, as they do not compete with bacteriological studies but are complementary. Hematological studies show two important features: (1) a relative or absolute leukopenia will be noted in most cases of genital tuberculosis, and (2) at least 50% of patients with active infections will have abnormally low hemoglobin levels. The discouragingly low incidence of positive smears by the Ziehl-Neelsen technique indicates the desirability of further exploration of the fluorescing auramine technique. A follow-up study of 28 patients treated with accepted procedures of the day (1945 to 1947, inclusive) disclosed that within two years after leaving the hospital 18 were dead, 4 were alive, and 6 were missing. Presumably one or more of the latter must have also died. The introduction of streptomycin was a milestone in the efforts to arrest or cure genital tuberculosis. The combination of the streptomycin group with *p*-aminosalicylic acid (PAS) and/or isoniazid has dramatically changed the usual chain of events. Silent lesions in the endometrium and/or oviducts respond promptly to these drugs. Pregnancies are now known to have occurred after drug therapy provided the oviduct had not been occluded or distorted or the mucosa too extensively involved. More advanced pelvic lesions still require prolonged and diligent supervision. Many patients heretofore considered candidates for surgery have been spared the ordeal and its possible associated complications because of early diagnosis and response to the drugs. However, in many instances subsequent surgical intervention is still necessary. This is particularly true of those patients who present adnexal masses, abscesses, prominent thickenings and infiltrations, and ascites.

PEDIATRICS

Congenital Heart Disease in Infants Diagnosed by Aid of Heart Catheterization and Angiography. I. Boesen, J. Lind, B. Merrild-Hansen and others. Ugesk. læger **117:**707-712 (June 2) 1955 (In Danish) [Copenhagen, Denmark].

Congenital heart disease was diagnosed clinically and by means of heart catheterization and/or angiography with intracardial injection of contrast substance in 34 out of 37 infants examined; 17 were theoretically operable. In 11 cases there was hypertension in the pulmonary artery combined with septum defect and left-right shunt. The examinations disturb the infants but little, and the results allow operation to be recommended in a number of patients on a considerably more certain diagnostic basis than previously.

Treatment of Infantile Cerebral Palsy with Glutamic Acid. N. S. Dragunova. Pediatriya pp. 59-63 (March-April) 1955 (In Russian) [Moscow, U.S.S.R.].

Glutamic acid and its amide, glutamin, have a stimulating effect on body metabolism and especially on brain tissue. Glutamic acid was used in the treatment of 50 patients. Forty-seven had various forms of cerebral palsy, of whom 10 had received no prior therapy, and 3 had microcephaly. On the whole, the results were good; they were excellent in the children who had not been previously treated. Very young children with severe disease were not much benefited. The intravenous route of administration was found to be traumatizing and was replaced by the oral route. In contrast to other workers, the author used small doses: one teaspoonful of a 1% solution of glutamic acid in a 40% solution of fructoglucose three times a day in children of preschool age and a tablespoonful for older children. These doses were administered after meals. Some children became restless and overstimulated, and their dosage had to be cut or temporarily stopped. Otherwise there were no untoward effects of therapy. Glutamic acid had an important effect on the psychic state of these children. Their apathy disappeared and they became lively and interested in their surroundings. Intellectually they became stronger. Their freedom of motion was extended. Hypersalivation was reduced. In some cases epileptic fits were obviated. Glutamic acid therapy can be used satisfactorily in combination with other treatments such as physiotherapy. Its effects become noticeable after the administration of 250 or 300 gm. of the 1% solution. For maximum effect a course of treatment must extend over a period of four or five months. The course can be repeated one or two months later.

Tuberculous Morbidity in Infants Vaccinated with BCG in Warsaw. H. Zapasnik-Kobierska and M. Stopnicka. Rev. tuberc. **19:**369-383 (No. 4) 1955 (In French) [Paris, France].

Two hundred five BCG-vaccinated children, aged from 2 to 15 years, were referred to a special clinic in Warsaw, Poland, for symptoms presumed to be tuberculous. Some of these patients had already received antituberculous therapy. The diagnosis proved to be correct, however, only in 22 of the children (11%). There were 15 cases of tracheobronchial adenopathy, 2 of pleurisy with effusion, one of tuberculous uveitis, and 4 cases of calcified lymph nodes. In only one of these patients was the vaccination considered to have been completely effective; the other cases of tuberculosis cannot be taken as evidence against BCG. The 183 children with false diagnoses of eight different forms of tuberculosis had a wide variety of conditions that often needed treatment of long duration. The three principal sources of error were: (1) wrong interpretation of the tuberculin test; (2) wrong interpretation of chest roentgenograms; and (3) failure to ask whether the child had been vaccinated with BCG or not. It is clear that tuberculosis develops rarely in children who have been properly vaccinated with BCG. The diagnosis of tuberculous disease must not be made lightly or quickly, for fear of improper therapy and consequent harm to the patient as well as unfavorable publicity for the BCG vaccination program.

Active Immunization Against Diphtheria in Nurslings with Anatoxins Adsorbed on Aluminum Hydroxide and Aluminum Phosphate: Comparative Responses to the Two Vaccines. A. Jemma. Minerva nipiol. **5:**41-44 (March-April) 1955 (In Italian) [Turin, Italy].

The immunizing efficacy and the eventual reactions following antidiphtheria vaccination with anatoxins adsorbed on aluminum hydroxide and on aluminum phosphate, respectively, were studied in two groups of infants most of whom were nurslings in the first year of life. The first vaccine was used for 38 infants, 10 of whom were born prematurely; the second was used for 41, and of these 7 were born prematurely. The infants were given two injections of each vaccine, the first in a 1 cc. dose, the second, four weeks later, in a 0.5 cc. dose. The inoculations were given intramuscularly because with this route the formation of nodules at the site of injection is prevented and the immunization is better. There was no local reaction in any of the infants and febrile reactions, when they occurred, were commoner in the premature infants; they were always, however, mild or moderate in degree. Immunity was increased in all; after 30 days, results of the Schick test were negative in 37 (97.4%) infants of the first group and in 38 (92.7%) of those in the second group. In one premature infant of the first and in three normal infants

of the second group, the test gave a reaction that was slightly positive. The results of this study indicated that one vaccine is not superior to the other with regard to increasing immunity and causing febrile reactions.

UROLOGY

Carcinoma of the Female Urethra: Review of the Literature: Report of Eight Cases. G. E. Fagan and A. T. Hertig. Obst. & Gynec. **6:**1-11 (July) 1955 [New York].

Fagan and Hertig discuss incidence, symptomatology, site of origin, pathological aspects, treatment, and prognosis of carcinoma of the female urethra on the basis of literature reports and of eight additional cases, which were observed at the Free Hospital for Women, Brookline, Mass., from 1935 through 1954. All were of squamous or transitional cell type. During this time there were 52,459 gynecologic admissions. The ages of the eight patients ranged between 40 and 73 years. Grossly the appearance of the squamous and transitional cell carcinomas varies, depending upon the stage of the disease. Initially the process is well localized. It may start as a small, papillomatous mass protruding above the surface or as an irregular thickening and induration of the mucosa and adjacent tissue. The initial lesion may appear as a small, spreading, superficial ulcer. As the disease progresses, the lesion may become a soft, fungating mass varying in size, which bleeds readily upon manipulation. Microscopically the squamous cell carcinomas are similar to such carcinomas of any other area. Varying degrees of dedifferentiation may be found so that the tumors may vary from a grade 1 with pearl formation to the highly anaplastic grade 4 type. All tumefactions and all suspicious lesions of the female urethra should be regarded as malignant until proved otherwise. The inguinal regions should be examined carefully for palpable nodes in the presence of lesions of the urethra. The authors mention types of treatment advocated by a number of authors and say that in the eight patients in this series only one had lymph node involvement proved by biopsy at the initial operation. She received local irradiation to the lesion and bilateral groin dissection followed by radon seed implantation to the operative site and roentgen therapy to the pelvic portals. Of the remaining seven patients, three were given only local irradiation with radium or radon seeds and a fourth received local irradiation after excision of the lesion with the diathermy loop. One patient underwent resection of the anterior vulva and left side of the urethral meatus followed by radium locally to the operative site. The treatment of choice for one patient was local irradiation with radium and radon seeds followed by roentgen therapy to the involved region. The last patient in this series received local irradiation following excision of the tumor with the diathermy loop plus roentgen therapy to the pelvic portals. Three patients died within one year. One patient is alive and well four years and seven months following initial therapy. Four patients were alive and well 10 years later. A recurrence developed in one of these four after 10 years, but she is alive and well three years after her second operation.

Recent Therapy of Phosphocalcic Urinary Lithiasis. R. Génot. Presse méd. **63:**932-934 (June 18) 1955 (In French) [Paris, France].

The value of two relatively new therapeutic agents in the treatment of phosphocalcic urinary lithiasis is examined. Alumina gels in association with a diet low in phosphorus and calcium were tried in 15 patients with lithiasis with mediocre results. Urinary excretion of phosphates was in fact reduced but only in response to large doses of the drug and not enough to warrant continuation of treatment. Furthermore, calcium excretion was slightly increased. The author also examined 538 specimens from 100 patients before and after injections of hyaluronidase and found no significant changes in the number of colloidal particles, regardless of dosage used or interval after injection. The drug is incapable of preventing the appearance of (1) lime oxalate crystals in normal or lithiasic persons who have received 50 gm. of rhubarb compote; (2) uric acid crystals in a patient with that tendency who has eaten a meal rich in purine; or (3) lime phosphate crystals in a predisposed patient who has received calcium and alkalines simultaneously. The areas of therapy of urinary lithiasis in which real progress has been made recently are treatment of urinary stasis by surgical means; treatment of hyperconcentrations of precipitable material, thanks to the systematic search for hypercalciuria and hyperphosphaturia and their causes; and treatment of urinary alkalosis with drugs acting on ureolytic germs and better acidifying agents.

Indications for and Results in Retropubic Prostatectomy. O. A. Nelson. Surg., Gynec. & Obst. **101:**80-84 (July) 1955 [Chicago].

Nelson defines retropubic prostatectomy as the removal of the prostate gland in part or in its entirety through a suprapubic extravesical incision. The reason for operating through the space of Retzius is to prevent the various complications that occur after the transurethral, perineal, or suprapubic-transvesical operation. Between July 1, 1951, and June 30, 1954, Nelson's group performed 238 retropubic prostatectomies for benign obstruction and 12 for early carcinoma. They also performed 291 transurethral resections, and 27 transvesical prostatectomies combined with vesical diverticulectomy. The results confirmed the basic principle set forth by Millin that an operation through the space of Retzius avoids damage to the structures that are important to vesical and urethral function. Postoperative cicatrization in the space of Retzius does not interfere with vesical or urethral drainage. Surgical shock and postoperative pain were definitely less after the retropubic procedure than after the transvesical operation. The outstanding feature of retropubic prostatectomy was the prompt recovery. After removal of the catheter, the majority of patients have very little dysuria or frequency of urination. The clearing of pus and organisms from the urine was more prompt than after any of the other types of prostatectomies. Another factor that contributes to the early, complete, and permanent return of normal vesical function after the retropubic operation may be the interruption of the enlarged sinuses in the prostatic capsule. With hyperplasia of the gland there is, practically always, enlargement of the blood sinuses in the capsule. When these sinuses are unusually enlarged, the condition is comparable to varicosity of the lower extremity. If varicosity of the leg causes suffering, the patient usually gets relief from either ligation or stripping of the veins. Therefore, it seems logical that the ligation of sinuses in the prostatic capsule incident to the retropubic procedure may be of advantage. Practically all types of prostatic obstruction, regardless of the size of the gland, can be removed retropubically. However, many of the small glands can be removed transurethrally with fewer disturbances to the patient than by an open operation. Certain concomitant conditions such as neoplasm or diverticulum of the bladder at times make the transvesical operation the preferable procedure.

Carcinoma of the Prostate: A Clinical and Steroid Metabolic Study. G. Birke, C. Franksson and L.-O. Plantin. Acta chir. scandinav. **109:**129-149 (No. 2) 1955 (In English) [Stockholm, Sweden].

This report is concerned with the elimination of androgens in the urine of 64 patients with prostatic cancer after various therapeutic measures. The diagnosis of prostatic cancer was made after palpation per rectum and was corroborated by urethrocystographic or histological examination. Roentgenologic examination of the skeleton (pelvis and lumbar spine) was carried out in all patients, and skeletal metastases were found in 31 patients. The authors found that in untreated patients with prostatic carcinoma the excretion of androgens (chemically estimated as androsterone and etiocholanotone) is—if there is any difference at all—lower than in normal males. Orchiectomy reduces the production of androgen metabolites, but within one month the excretion tends to reach or exceed the preoperative values. When orchiectomy is followed by adrenalectomy, the androgen metabolites disappear completely from the urine. Stilbestrol in a dose of 30 mg. daily totally eliminates the testicular production within five days. Ten milligrams daily is the lowest dose that has the same effect within three weeks and 5 mg. daily,

in long-term treatment. Cortisone in a dose of 50 to 75 mg. daily totally depresses the androgen production of the adrenals. In untreated cases the production of androgens can be totally eliminated by a combination of Stilbestrol and cortisone. There is a distinct correlation between clinical effect and excretion of androgens. Patients with a high steroid excretion which has been substantially reduced by the respective androgen-controlling measures present a good clinical effect. This is more pronounced in orchiectomy than in measures to reduce the adrenal production of androgens. Patients with a low excretion of androgens, who therefore show a poor reduction after androgen-controlling measures, present an unsatisfactory clinical response to the various therapeutic measures.

THERAPEUTICS

Fatal Anuria from Phenylbutazone. C. Toussaint, J. Brauman, J. Smulders and P. P. Lambert. Acta clin. belg. **10:**224-243 (May-June) 1955 (In French) [Brussels, Belgium].

A 52-year-old woman received two intramuscular injections of 5 cc. each of Irgapyrin on two successive days for a left sciatica. Two days after the second injection she took a tablet of novalginequinine after which she felt ill, vomited, and had fever. The next day there was complete anuria, lasting until a week before her death 17 days later. Death occurred from pulmonary edema with cardiac insufficiency caused by water retention, despite repeated massive peritoneal dialyses. One hundred forty-five grams of urea were extracted by this method and most of the electrolyte disturbances were corrected, but it was difficult to keep the osmotic pressure of the dialyzing fluid higher than that of the plasma. Since the patient was obese, emptying of the abdomen had to be accomplished through small incisions of the abdominal wall, into which polyethylene tubes were placed. There was a considerable amount of intraperitoneal retention. Marked hyperglycemia occurred after the last two dialyses. The development of the various renal clearances gave a bad prognosis for this nephropathy; the urea and creatinine clearances did not rise but remained almost constant. The kidney lesions seen at autopsy appeared to have been caused by prolonged ischemia. Acute arterial hyalinosis was noted in a number of organs. The lesions resembled those seen in experimentally induced renal insufficiency and are probably caused by the same mechanism.

Gastroscopic Observations of the Anticholinergic Effect of Pro-Banthine® on Gastric Motility and Pyloric Function. H. Barowsky. Am. J. Gastroenterol. **23:**557-563 (June) 1955 [New York].

This study on the effect of anticholinergic drugs on gastric motility was carried out to substantiate and amplify previous observations and to obtain more information on the degree of gastric inactivity, on the doses required, and on the differences between parenteral and oral administrations. The gastroscopic method of investigation was selected because it was felt that it was objective and would therefore be most reliable. The patients selected for this study complained of upper abdominal pain. They were all ambulatory and were observed in the outpatient department. Fifty gastroscopies were performed on 20 men and 20 women, ranging in age from 17 to 72 years. Ten had duodenal ulcer, 2 gastric ulcer, 5 gallbladder disease, 5 chronic gastritis, and 18 functional dyspepsia. Pro-Banthine, which is a brand of propantheline bromide, was administered intramuscularly to one group and orally to another. In some instances, on different occasions, the same patient was exposed to both types of tests. It was found that when Pro-Banthine is administered in adequate doses it will cause relatively complete gastric inactivity. Gastric peristalsis stops rather suddenly and leaves the stomach in a relaxed state. At the same time, the rhythmic opening and closing of the pylorus ceases and a relative paralysis ensues. This ability to cause gastric motor inactivity offers a reliable method for testing anticholinergic drugs in human subjects. In some instances, the anticholinergic drug will also cause a fading of the orange-red color of the gastric mucosa. The minimal effective dose varies with the mode of administration. Uniform cessation of peristalsis was obtained with only 10 mg. when given intramuscularly, whereas as much as 30 mg. had to be used orally to obtain the same effect. The length of time required for the drug to become effective was also dependent on the mode of administration; it took approximately 6 to 7 minutes when the medication was given intramuscularly and as much as 15 to 25 minutes when taken orally. Increased dosage did not seem to affect these time factors. Complete gastric inactivity lasted approximately one hour to one hour and 10 minutes. For an additional few minutes, diminished peristalsis was observed, then normal gastric activity ensued. Increased doses did not prolong the action of the drug. Both the intramuscular and oral routes of administration resulted in approximately the same duration of action.

Effects of Large Doses of Chloramphenicol on Human Subjects. I. H. Krakoff, D. A. Karnofsky and J. H. Burchenal. New England J. Med. **253:**7-10 (July 7) 1955 [Boston].

This study was undertaken to investigate the effects of large doses of chloramphenicol in patients with neoplastic disease, since if this drug were a consistent bone marrow depressant it might have therapeutic effects similar to those observed with other bone marrow depressants, such as nitrogen mustard, 6-mercaptopurine, and the folic acid antagonists, and might therefore be useful in certain forms of neoplastic disease. Four patients with inoperable and far advanced cancer were treated with chloramphenicol by mouth. The following diagnoses were made: carcinoma of the vagina, with local extension; perithelial sarcoma, with cerebral invasion; melanocarcinoma, with widespread metastases; carcinoma of the breast, operated on and nonrecurrent; and carcinoma of the rectum, with abdominal and cerebral metastases. The dosage was begun at conventional levels and was gradually increased until the maximum tolerated daily dose of 6, 8, or 12 gm. was achieved. Hematological studies consisted of daily hemoglobin, leukocyte, and reticulocyte determinations. Differential leukocyte counts and platelet and erythrocyte counts were performed two or three times weekly. Bone marrow examinations before, during, and after treatment were performed on three of the four patients. No effect on the course of the malignant diseases was observed. Minor hematological abnormalities and severe glossitis occurred in three patients, the glossitis preventing continuation of the drug. The tongue in these three patients was reddened, edematous, smooth, and very painful. Similar changes were seen in the buccal and pharyngeal mucosa. When the drug was stopped these signs disappeared in three to five days. Tongue and mucosal changes were produced a second time in two of the patients. Severe hematological depression and bone marrow abnormalities occurred in one patient, who tolerated larger doses without glossitis. All abnormalities were reversible on cessation of the drug. In the patients in whom some depression of the formed elements of the blood had resulted from large doses of chloramphenicol, hematological idiosyncrasy did not appear when small doses were readministered. This argues against the concept of drug idiosyncrasy as a mechanism of hematological depression in these patients. It was found also that a fall in the reticulocyte count is the earliest sign of bone marrow intoxication.

Treatment of Intractable Pain with Large Doses of Morphine and Diamino-Phenylthiazole. F. H. Shaw and A. Shulman. Brit. M. J. **1:**1367-1369 (June 4) 1955 [London, England].

The authors report on the use, in 35 cases, of the morphine antagonist 2:4-diamino-5-phenylthiazole hydrobromide, which, while having little effect on the analgesic properties of morphine, reveals marked and lasting antagonism to its respiratory depressant effect and thus renders the clinical use of large doses of morphine safe. The administration of small dosages of morphine at frequent intervals should be abandoned. One should aim at large—1 to 2 grains (65 to 130 mg.)—doses of morphine, which are sufficient to produce an analgesia of six to eight hours' duration and which nevertheless still keep the patient alert. The principle of the treatment consists in giving gradually increasing amounts—.25 grain (16 mg.) increments—of morphine accompanied by diamino-phenylthiazole (15 mg.) over a period of one or two days until the desired degree of analgesia is obtained. In cases of very severe pain it may be necessary to give doses

V 1
195

of morphine of up to 2 grains (130 mg.) three or four times a day. Diamino-phenylthiazole is a safe drug. The dose is 15 mg. intramuscularly; as much as 100 mg. has been given without ill-effect, but careful administration is advised as these high doses are approached. Slow and irregular breathing is not a sign of respiratory danger, provided that the respirations are deep and cyanosis is not present. Diamino-phenylthiazole will increase the depth rather than the rate of respiration. For more rapid action, the diamino-phenylthiazole may be injected intravenously. Diamino-phenylthiazole given in therapeutic doses to a morphinized patient causes practically no side-effects. There are no pharmacological contraindications to the use of diamino-phenylthiazole with hyoscine, atropine, barbiturates, or chlorpromazine. The authors present tabulated data on 10 patients and brief histories of 2 of the 35 patients treated with morphine and diamino-phenylthiazole for intractable pain. Another table lists the dosages required for complete relief from pain in all 35 patients. Diamino-phenylthiazole was used also in a few cases of neonatal asphyxia, in methadone hydrochloride poisoning, and for the relief of postoperative pain. In the last-mentioned example the ability of the patient to cough painlessly was important.

Advanced Breast Cancer in Women: Complications of Hormonal Treatment. V. Faria, G. Scarinci and W. Sylvestre. Hospital **48:**611-616 (May) 1955 (In Portuguese) [Rio de Janeiro, Brazil].

The use of male sex hormone in women with inoperable breast cancer or in the postoperative period of mastectomy produces satisfactory results in the majority of the cases. The general state of health of the patient improves, anemia and pain disappear, and the body weight increases. The results simulate those of a clinical cure. Frequent unpleasant but not severe complications are hirsutism, increased libido, change of voice and complexion to those of a masculine type, and acne. All of these complications disappear or greatly improve a few weeks or a few months after discontinuance of the treatment. Severe and often fatal complications of hormonal treatment include edema formation, hypercalcemia, and aggravation of the disease. Edema manifests itself by progressive increase in weight. If it is not controlled by a salt-free diet and administration of mercurial diuretics, the hormonal treatment should be discontinued. Discontinuance of hormonal treatment is indicated if edema is acute or generalized, especially if it involves the arm on the side on which mastectomy was performed. Edema in patients with heart disease is another indication for discontinuance of hormonal treatment. Hypercalcemia is occasionally observed in patients with cancer. Its presence is a contraindication to hormonal treatment. Appearance of calcemia in the course of the treatment indicates toxicity and calls for its immediate discontinuance. Early symptoms are somnolence and headache. If the treatment is not discontinued and the condition is not controlled, vomiting, abdominal pain, diarrhea, and renal insufficiency follow. Aggravation of cancer as a result of male hormonal treatment may occur in a small percentage of cases. The androgens accelerate the course of visceral and skeletal metastases and the initial cancer lesion. The general state of health of the patient rapidly deteriorates, the patients have no appetite for food, and cachexia rapidly progresses. However, the symptoms and the disease may become static by discontinuation of hormonal treatment.

Possibilities for Complete Parenteral Nutrition. A. Wretlind. Nord. med. **53:**1013-1019 (June 30) 1955 (In Swedish) [Stockholm, Sweden].

Amino acids administered parenterally are utilized for synthesis of the body's protein and can be given to maintain or improve the protein nutrition. Parenteral nutrition includes amino acids and salts and carbohydrates in the form of glucose or fructose together with vitamins. By infusion of amino acids with carbohydrates, positive nitrogen or protein balance can be achieved in a number of cases even though the body's caloric need is not covered. If parenteral nutrition is to be complete, amino acids, glucose, and fat must be present in the solution. Fat in an emulsion for intravenous use must be finely dispersed; the aim is usually to keep the diameter of the particles at .2—1μ. Parenteral administration of fat, so that the entire caloric requirement can be met parenterally, is being studied intensively, and routine administration of amino acid-glucose-fat emulsions containing the necessary salts and minerals in conditions where complete parenteral nutrition is necessary may be looked for in the near future. No method is at present available for producing these emulsions in such a way that they may be stored for any length of time.

Triethylene Melamine (TEM) in the Treatment of Malignant Lymphoid Disease. C. K. Hambly and T. I. Robertson. M. J. Australia **1:**900-911 (June18) 1955 [Sydney, Australia].

Triethylene melamine (TEM) is a white crystalline powder structurally related to nitrogen mustard and especially to the active ethylene-imonium transformation product formed from nitrogen mustard in tissue fluids. The authors gave triethylene melamine to 37 patients, selected for treatment with this drug because of generalized disease of hematopoietic or lymphoid tissue or because of resistance to radiotherapy. There were 12 patients with Hodgkin's disease, 10 with chronic lymphocytic leukemia, 9 with lymphosarcoma, 3 with follicular lymphoma, and 3 with reticulosarcoma. The diagnosis was confirmed in each case by biopsy of a lymph node. The drug was given also to one patient with polycythemia vera, to 2 with malignant melanoma, and to one with Lœffler's syndrome, making a total of 41 patients. The investigation extended over a period of 18 months. Postmortem examinations were made on 11 of 20 patients who died during treatment. Triethylene melamine proved to be of most value in chronic lymphocytic leukemia, in stages 2 and 3 of the malignant lymphoid diseases, and in polycythemia vera. It was, however, not the treatment of choice in these diseases. It was of limited value in advanced disease, and its efficacy was directly related to the patient's general physical condition. It has been found possible to use a lower dose than generally reported. This is attributed to giving the drug to the fasting patients with preliminary alkali, thus insuring constant absorption. The hematological effects were most pronounced on neutrophil cells, platelets, and the malignant lymphocytes. Toxic effects have been observed in the bone marrow, the liver, and the gastrointestinal, renal, and central nervous systems, together with minor skin eruptions. The drug is dangerous to patients in poor physical condition, but it is worthy of further trial in the treatment of nephrotic edema, lupus erythematosus, and Lœffler's syndrome.

The Clinical Significance of Positive Cultures and of Isoniazid-Resistant Tubercle Bacilli During the Treatment of Pulmonary Tuberculosis: Report to the Tuberculosis Chemotherapy Trials Committee of the Medical Research Council. W. Fox and I. Sutherland. Thorax **10:**85-98 (June) 1955 [London, England].

A study was made on 234 patients with pulmonary tuberculosis who were treated with isoniazid alone (100 mg. twice daily) for three months. The patients were classified from the bacteriological findings at the end of two months into groups of 91 with negative cultures, 58 with strains sensitive to isoniazid, 47 with moderately resistant strains, and 38 with strongly resistant strains. These bacteriological findings were first related to the clinical characteristics of the patients at the start of treatment. Patients in poor general condition or with high degrees of pyrexia, high sedimentation rates, or extensive cavitation were culture-positive at the end of two months more frequently than those with more favorable clinical characteristics at the start of treatment. In contrast, the emergence of isoniazid-resistant organisms was related only to the extensiveness of initial cavitation. Therefore, when studying the clinical significance of isoniazid resistance, comparisons should be restricted to patients with the same degree of initial cavitation. Patients with negative cultures at the end of two months showed on the average greater clinical progress after three months' treatment than patients with positive cultures at two months. When standardized

for differences in extent of initial cavitation, the percentages with radiographic improvement at the end of three months were 75% for the negative group and 50% for the positive group. There was much less difference in clinical progress at the end of three months between the patients with sensitive and the patients with resistant strains. The percentages showing radiographic improvement were 55% for the sensitive and 46% for the resistant group. Further investigation suggests that even these differences may not be a direct consequence of the development of bacterial resistance, since the radiographic improvements and deteriorations were evenly distributed throughout the three month period. It is therefore possible that relatively poor clinical progress and the development of bacterial resistance are both characteristic of patients with a particular host response or type of disease. Similar studies of the bacterial content of the sputum show a considerable benefit at three months to the sensitive group, 27% having specimens positive on direct examination compared with 65% for the resistant group. Again further analyses yielded no evidence that this difference arose from changes consequent upon the development of resistance. It is concluded that the early disappearance of tubercle bacilli from the sputum is an important sign of favorable progress of patients treated with isoniazid alone. The study of possible clinical disadvantages due directly to the development of isoniazid resistance is inconclusive. Nevertheless, because isoniazid resistance tends to occur in disease that is pursuing a relatively unfavorable course, its development is an adverse prognostic sign. Isoniazid should be given only in combination with suitable dosages of other drugs.

The Sterilization of Blankets with Cetyl Trimethylamine Bromide. R. Blowers and K. R. Wallace. Lancet **1**:1250-1254 (June 18) 1955 [London, England].

It has been shown that patients in hospital quickly become nose and skin carriers of Micrococcus (Staphylococcus) organisms that are resistant to antibiotics. Blankets are largely responsible for the transfer of these organisms from patient to patient and should be washed and sterilized for each new occupant of the bed. The usual method of laundering blankets by a low-temperature wash does not sterilize them, and autoclaving is unsatisfactory, because it produces gross shrinking and felting. Oiling reduces the dissemination of particles from blankets, but there are objections to this process. The authors describe a method whereby blankets are treated with Cirrasol OD, which is an aqueous paste containing about 12.5% of technical-quality cetyl trimethylamine bromide. The consistency of the paste varies with the temperature, but the paste dissolves easily in warm water. Blankets were taken at random from those coming into a hospital laundry from medical and surgical wards. Treatment with Cirrasol produced blankets from which only occasional organisms were isolated. The mean colony-counts on 78 blankets before and after treatment were 194 and 2.6 respectively. In contrast the routine washing procedure was much less effective; the mean counts for 42 blankets before and after washing were 346 and 208 respectively. After treatment with Cirrasol the blankets were of normal appearance and texture and odorless. The authors were able to show that Cirrasol remained in the blankets by shaking them over culture plates sown with Micrococcus (Staphylococcus) aureus. After incubation the growth of the Micrococcus organisms was completely inhibited. Previous work with quaternary ammonium compounds is mentioned.

Use of Isotope-Labelled Red Cells to Demonstrate Incompatibility in Vivo. P. L. Mollison and M. Cutbush. Lancet **1**:1290-1295 (June 25) 1955 [London, England].

In selecting blood for transfusion, it may be difficult to decide whether a reaction occurring in vitro implies that red blood cells will be destroyed in vivo. For example, crossmatching may reveal the presence of a specific antibody strongly active at low temperatures but doubtfully active at 37 C; in other cases all blood samples may react weakly with the patient's serum at 37 C, suggesting the presence of a nonspecific antibody. In such cases there is a real need for a biological test to supplement tests in vitro. By labelling red blood cells with radioactive isotopes, it is possible to measure the survival of very small volumes of blood cells. In investigations reported here approximately 1 ml. of red blood cells were labelled either with the isotope Cr^{51} or with P^{32}. In addition to determining whether the red blood cells of prospective donors are compatible, this method provides a means of discovering more about the action of blood group antibodies in vivo. It was found that P^{32} is suitable as a label when the survival is to be followed for an hour or so; but Cr^{51} must be used when survival is to be followed for days or weeks. When incompatible red blood cells were injected, their elimination followed one of two main patterns: In the first pattern 50 to 100% of the blood cells were destroyed within 10 minutes; blood cells surviving at the end of this period were much more slowly destroyed. This pattern of elimination was seen when blood cells were injected into patients whose serum contained anti-Fy^a, anti-Le^a, or anti-P. In the second pattern the blood cells were eliminated at a steady rate, with a half-period of 20 to 30 minutes. This pattern was seen when blood cells were injected into patients whose serum contained anti-Rh or anti-Kell. In all cases in which red blood cells were rapidly destroyed in vivo, the indirect antiglobulin test was positive in vitro. However, in cases where the serum contained anti-Le^a or anti-P, the cells were sensitized only if incubated with fresh serum. Moreover in these cases it was shown that the reaction of the sensitized blood cells with antiglobulin serum depended not on anti-gamma globulin but upon anti-beta globulin. Some antiglobulin serums were unsuitable for the detection of these antibodies.

INDUSTRIAL MEDICINE

The Value of Lung Biopsy in the Diagnosis of Occupational Pulmonary Diseases. H. S. van Ordstrand, D. B. Effler, L. J. McCormack and J. B. Hazard. A. M. A. Arch. Indust. Health **12**:26-32 (July) 1955 [Chicago].

In 26 of 66 patients on whom surgical lung biopsy was performed in the course of the past five years at the Cleveland Clinic, a question of occupational disease arose on the basis of history, roentgenologic findings, or a combination of the two. In 11 of the 26 patients, the lung biopsy finally proved a diagnosis of an occupational disease, i. e., asbestosis in 1, siderosis in 1, silicosis in 3, and berylliosis in 6. The cases of 2 of these 11 patients that are representative of all of them are reported in detail. In contrast to these 11 patients, a presumptive diagnosis of occupational disease was disproved by lung biopsy in the remaining 15 patients; presumptive diagnosis had been based on suggestive exposure history in 3, on suggestive roentgen-ray picture in 6, and on suggestive exposure history and roentgen-ray picture in the remaining 6; 3 cases illustrating each of these three categories are reported. Surgical lung biopsy is a direct approach to the diagnosis of diffuse pulmonary disease in patients in whom routinely used studies fail to establish an accurate diagnosis. It is a particularly important procedure in borderline cases in which it is otherwise impossible to prove or disprove the presence of an occupational disease.

Comparative Vascular Pathology of Occupational Chest Diseases: Preliminary Observations. G. W. H. Schepers. A. M. A. Arch. Indust. Health **12**:7-25 (July) 1955 [Chicago].

Both the autopsy and biopsy findings in the lungs of persons who had been adequately exposed to industrial dusts, including quartz, iron, coal, talc, gypsum, diatomaceous earth, beryllium compounds, and asbestos, either singly or in combination, showed a diversity of lesions of the blood vessels whose prevalence and extent varied according to the nature of the foreign substances deposited in the lungs, their quantity, and associated infection. The most pronounced effects were on the smaller vessels and comprised cellular and collagenous lesions of the

capillaries in the alveolar walls, damage to the intima, muscular coats, and adventitia of the arterioles and venules, and perivascular deposits of pigments, fibrocytes, and macrophages with variable degrees of associated fibrosis. The effect on these small vessels may be to occlude, stenose, and distort them and to create inefficient vascular short circuits. Larger pulmonary vessels may also show damage, ranging from intimal atheroma to medial segmental hypertrophy and collagen degeneration, cicatrical stenosis, and aneurysmal distention. Such vessels may become eroded and rupture. Exploration of the relationship between the silicotic nodule and the vascular system revealed that in silicosis, the vascular damage is an added lesion over and above the specific collagenous nodules, which later may show their own peculiar vascular degenerative phenomena. In anthracosis, siderosis, berylliosis, talcosis, and asbestosis, the perivascular lesion proved to be an integral and indistinguishable component of the pathognomonic pulmonary dust lesion. Specific dust particles or fibers and even asbestos and tremolite bodies may, in most instances, be demonstrated within or in relation to these vascular lesions. In the presence of superimposed infection, particularly tuberculosis, the vascular damage may be disproportionately great. This effect was found to be enhanced if there was associated quartz inhalation. Asbestosis was not observed to follow these rules directly. It is suggested that these vascular changes may be a factor in the genesis of cor pulmonale, though it is not at present established that they may bring about this result in the absence of associated physiological disturbances leading to anoxia.

RADIOLOGY

Comparison of Bronchograms with Bronchial Lesions of Excision Specimens: Value of Thin-Layer Lipiodol. P. Simonin, J. Girard, J.-P. Grilliat and B. Pierson. Strasbourg méd. **6:**283-290 (May) 1955 (In French) [Strasbourg, France].

About 300 bronchograms were performed with lipiodol introduced into the bronchi by vaporization. Only 12 cc. of lipiodol at 20 or 40% for two lungs was used. The patients were all tuberculous women between the ages of 18 and 36. No accidents occurred in the series. Of the 279 bronchograms considered suitable for analysis, only 27 could be termed normal. The commonest abnormality seen in the others was moniliform dilatation (210 cases). It is possible to differentiate this entity from dilatations of the ampulla, and they appear to have separate causes. Seven operative specimens were examined in detail, and three types of bronchial lesions were found in them: tuberculous inflammatory bronchitis, discrete caseous bronchitis, and intense caseous bronchitis. From the combined data it can be concluded that pulmonary tuberculosis is accompanied early and in the majority of patients by lesions of the bronchi of the involved segment. Involvement of the elastic fibers is the causal factor in the formation of the dilatations. The changes thus caused are irreversible; the dilatations can be seen on bronchography in patients with cured tuberculosis. All tuberculous patients should be examined by the harmless thin-layer lipiodol method of bronchography. Severe bronchial alterations are an indication for resection of a segment or lobe rather than for more conservative therapy with danger of tuberculous dissemination through the bronchi. In three out of four cases, involvement of the superior lobe is accompanied by a lesion of Fowler's summit on the same side. In patients with bronchial dilatation, one must ascertain whether this is not the result of former tuberculosis before performing surgical intervention, and the operation should be covered by adequate antibiotic preparation.

Effect of Radioactive Phosphorus on Essential Polyglobulism and Increase in the Number of Platelets: Based on 82 Cases. M. Tubiana and J. Gazel. Presse méd. **63:**851-854 (June 1) 1955 (In French) [Paris, France].

Among 82 patients with essential polyglobulism, treatment with radioactive phosphorus brought about a decrease in the number of red blood cells and platelets in every case but one. In two patients with increased number of platelets only a decrease was obtained without the production of anemia or leukopenia. P^{32} acts on the hematopoietic system alone and does nothing to diminish the number of circulating red blood cells. Its irradiating effects last about a month after its ingestion. In view of this, one must wait 8 to 10 weeks before judging the results of treatment, or even longer. Great caution should be exercised regarding a second application. The method of administration used by the authors was 0.9 mc. of P^{32} per 10 kg. of body weight given by mouth in the fasting state. The average length of the remissions obtained varied between 5 and 10 months, but the duration is capable of wide variation. Relapses are affected by treatment in much the same manner as the initial attack, but it would seem possible to use smaller doses of P^{32}. When hematological remission is achieved, and sometimes before, the serum iron increases, gastric disorders disappear, and neurological complications are improved. Radiosensitivity to P^{32} is the same regardless of duration of disease, previous therapy, or the number of red blood cells. Treatment with radioactive phosphorus is usually well tolerated; two cases of severe anemia were observed in this series, however.

Two Cases of Brill-Symmers' Giant Follicular Lymphoma Treated with Radioactive Phosphorus. H. Desgrez, G. Ledoux-Lebard, R. A. Guérin and others. Presse méd. **63:**954-956 (June 22) 1955 (In French) [Paris, France].

Two women, aged 50 and 80, respectively, were first seen in the advanced stage of follicular lymphomatosis, with generalized lymphadenopathy and serious complications such as serous effusion. Their disease was radioresistant. P^{32} was administered to them by mouth in doses 25% larger than would be given intravenously, to compensate for urinary excretion of the drug. During the period of therapy, the patients had no malaise nor did they suffer hematological disturbances; such incidents could probably not have been avoided if the patients had been treated by teleradiotherapy. After the administration of the first dose of radioactive phosphorus, there was a period of latency of about three weeks before regression of the adenopathy began. Softening of the lesions was noted during this time. The eventual effect of the treatment was excellent and has remained so during a follow-up of 18 months in the younger patient, whose disease was of five years' duration, and two years in the other, whose disease was of eight years' duration. At the beginning of treatment, the doses should be spaced at short intervals and a constant watch kept on the patient's blood. Treatment should be continued after the disappearance of adenopathy. While roentgen irradiation remains the proper therapy for the localized phase of giant follicular lymphoma (Brill-Symmers' disease), the generalized condition is best treated by P^{32}.

The Incidence of Leukemia in Ankylosing Spondylitis Treated with X-Rays: A Preliminary Report. W. M. C. Brown and J. D. Abbatt. Lancet **1:**1283-1285 (June 25) 1955 [London, England].

The long-term evaluation of the treatment of ankylosing spondylitis with x-rays has revealed that some of these patients died from leukemia. In recent months an investigation has begun of the death rate from leukemia among patients suffering from ankylosing spondylitis and treated with x-rays. This investigation is being continued under the auspices of the Medical Research Council's working party on leukemia research, and, while its final conclusions will not be reached for some time, the findings to date are felt to be sufficiently important to warrant a preliminary report. A series of 9,364 patients treated from 1940 to 1954, inclusively, has been analyzed and the expected number of deaths from leukemia in this series has been calculated on the basis of the male age-specific death rates from leukemia in England and Wales for 1953. The observed deaths from leukemia have been found to be at least 5 times, and possibly as many as 10 times, the expected number of such deaths, and among patients given more than one course of x-ray treatment the observed deaths are probably at least 9 times those expected to occur. Evidence suggests that patients with ankylosing spondylitis may be unusually susceptible to the development of leukemia, but also it is likely that the incidence of leukemia is appreciably raised among those patients given more than one course of x-ray treatment. Reviewing the above findings in the light of a number of reports in the medical literature, it is concluded that some, if not the majority, of the observed cases of leukemia may be attributable to irradiation. Further investigation is necessary to confirm these findings.

BOOK REVIEWS

Clinical Disorders of Hydration and Acid-Base Equilibrium. By Louis G. Welt, M.D., Professor of Medicine, Department of Medicine, University of North Carolina, Chapel Hill. Cloth. $6. Pp. 262, with 11 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

This timely book deals with problems that in recent years have come to the foreground of clinical interest in medicine and surgery, as well as in many of the specialties. In the first part, which deals with physiological considerations, basic concepts and units of measurement are well defined and various factors influencing the exchange of electrolytes and water, the acid base relationships, and renal physiology are discussed. The much longer second part concerns clinical considerations, including the maintenance and requirements of various metabolites, as well as the parenteral use of fluid, followed by chapters dealing with such specific clinical problems as dehydration, endocrine disorders, acidosis, alkalosis, edema, and acute renal insufficiency. These chapters are extensively illustrated by case histories, and an ample bibliography leads to valuable reference material. The basic principle of the book is the consideration of disorders of electrolyte metabolism as a problem of disturbed equilibrium in general rather than as a specific manifestation of a given disease. It recommends that, in the management of the individual patient, the broader nature of the disturbance not be overlooked. The approach is clinical with the physiological basis well interwoven. Practical diagnostic and therapeutic "pearls" are found throughout the second part of the book. The style is clear but heavy and requires attentive reading. This is the major drawback of the otherwise excellent book, which should be useful for both reading and reference for anybody concerned with these widespread clinical problems.

Prolonged and Perplexing Fevers. By Chester S. Keefer, M.D., Physician-in-Chief and Director, Evans Memorial, Massachusetts Memorial Hospitals, Boston, and Samuel E. Leard, M.D., Assistant Visiting Physician and Assistant Member, Evans Memorial, Massachusetts Memorial Hospitals. Cloth. $5.50. Pp. 248. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

Fevers of unknown origin present a frequently recurring problem in differential diagnosis. Many of these cases are extremely baffling, and they tend to gravitate into large teaching centers. Although they usually exert a particular fascination for those who have made a special study of infectious diseases, they involve almost every field in internal medicine, and the problem is not systematically approached in textbooks. Thus a volume devoted exclusively to the prolonged fevers is welcome, especially when the senior author is a clinician and teacher of wide experience and international reputation. This book approaches the subject systematically. After a consideration of variations in the normal body temperature, there is a section on the examination of the patient and diagnostic procedures. Thereafter the infectious fevers are discussed in detail, followed by the noninfectious fevers. These latter are associated with tumors, blood dyscrasias, and other conditions. All these subjects are abundantly illustrated by case histories; there is a satisfactory index, and 226 references are listed in the bibliography.

With all this richness of material, it may seem captious to criticize, and yet one puts the book down with a certain sense of disappointment. For example, while the list of diagnostic tests is very full, one would have hoped for more consideration of the order in which these tests are applied. Surprisingly, there is no discussion of the significance of therapeutic agents applied diagnostically. Surely the appraisal of the effects of antibiotics (particularly streptomycin), salicylates, cortisone, chloroquine, and nitrogen mustard looms very large in any study of fevers of unknown origin. Furthermore, rheumatic fever is cursorily treated in just over a page, with no mention of the postcommissurotomy syndrome, while coccidioidomycosis is accorded three pages. The section on drug fever is limited to a consideration of iodism, surely an inadequate treatment of this important field. There is no discussion of sarcoidosis. In a book that describes such rarities as idiopathic familial lipemia and metal fume fever, it is surprising that leptospirosis and cat scratch fever are omitted. On the other hand, much of the book is excellent. The discussions of local septic infections and tumors are particularly good. This volume should be a welcome addition to the library of those interested in fevers.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Canadian Cancer Conference. Volume I. Edited by R. W. Begg, Department of Medical Research, University of Western Ontario, London, Canada. Proceedings of the First Canadian Cancer Research Conference, Honey Harbour, Ontario, June 16-19, 1954. Cloth. $8.80. Pp. 443, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

The National Cancer Institute of Canada was founded in 1947, or exactly a decade after the birth of the National Cancer Institute of the United States. This volume records the proceedings of the first (1954) meeting of cancer research workers of Canada supported under its grants, to which were invited a half dozen guests from the United States and one from Denmark. The papers are oriented along the so-called fundamental approaches and are divided into sessions on experimental tumors, tumor-host relations, enzymes, ionizing radiations, and lung cancer. The articles range from thoughtful surveys and a modicum of original data to brief sketchy generalities. The Canadian contributions show some freshness of concept, such as the radiation chemotherapy of Frank and his confreres, and emphasis on certain aspects not well covered elsewhere, such as the lipid metabolism studies of McEwen. The purpose of the book seems to be primarily archival, as a record of the first of what undoubtedly will be a series of meetings. It presents a good cross section study of laboratory cancer research in Canada. Interest in the volume would be limited to the cancer research worker in the laboratory, and the clinician would find it of but little interest. The Academic Press continues to perform an excellent job of publishing biological research. The format, type, and illustrations are up to its high standards.

Sexual Hygiene and Pathology: A Manual for the Physician. By John F. Oliven, M.D., Psychiatrist to Vanderbilt Clinic, Columbia-Presbyterian Medical Center, New York. Cloth. $10. Pp. 481. J. B. Lippincott Company, East Washington Sq., Philadelphia 5, 1955.

This greatly needed book has been well done. Many physicians and all medical students can read it with profit. The material is well organized in four parts, including sexuality in childhood, in the second decade, and in the normal adult, and finally sexual pathology. The author has an attractive style and employs excellent diction for the most part, with only an occasional word or phrase that the purist might question. Typographical errors are so few as to be negligible. It is refreshing to find a book on sexual science that does not repeat the old error of Krafft-Ebing and Max Huhner, attributing the cause of orgasm to the ejaculation of semen or (as the latter claimed) of lubricating fluid from the bulbovestibular glands of Bartholin. It is also cheering to find a psychiatrist not propounding the so-called vaginal orgasm, but stating "the 'failure-to-transfer' theory, i. e., from the child's clitoris to the adult's vagina, much discussed at one time [is] now in decline." Nothing could be truer than the author's conclusion that nonpsychogenic impotence in aging men is most plausibly associated with arteriosclerotic changes in the cerebral, spinal, pelvic, or genitourinary vessels and that "clinical research on, and employment of, those few aphrodisiac substances which have shown promise has been neglected in recent decades, particularly in the United States." Unfortunately the author uses the psychiatric definition of frigidity "in the strict sense, the inability to achieve orgasm during sexual intercourse, often in the presence of affection, desire, arousal, and coital pleasure feelings." This is a paradox

V 1
195

and should be abandoned along with the Freudian claim that every woman who cannot have a vaginal orgasm is frigid. Frigidity means sexual coldness, and it is absurd to call the most passionate women frigid merely because they cannot achieve orgasm in normal sexual intercourse. The term "anhedonia cum frigidity" is used repeatedly and is not only an unfortunate hybrid term, but repetitious, because anhedonia (complete lack of sexual pleasure) is a severe type of frigidity. Havelock Ellis's term, hyphedonia, which means lessened sexual pleasure, is not employed at all. The statement that testosterone is probably ineffective where the woman never had experienced orgasm previously is definitely incorrect. There is a tendency to shorten words, as narcism for narcissism, and to combine two as one (spermigration)and there are a few obsolete words such as 'innards' and "fricating,' but the work is a scholarly one. Although 125 authors are listed in a name index, not one had more than a one page reference, not even Havelock Ellis or Alfred Kinsey, though R. L. Dickinson is mentioned twice. There is no bibliography. This book should be welcomed into medical curriculums and in physicians' offices. The author and publishers are to be highly commended for having made it available.

The Chemistry of Micro-Organisms. By Arthur Bracken, B.Sc., Ph.D., F.R.I.C. Cloth. $6. Pp. 343. Pitman Publishing Corporation, 2-6 W. 45th St., New York 36; Sir Isaac Pitman & Sons, Ltd., Pitman House, 39-41 Parker St., Kingsway, London, W.C.2, England; 381-383 Church St., Toronto, Canada, 1955.

This book grew out of a series of lectures "at one of the large London Polytechnics" on the metabolism of micro-organisms. The people who attended the lectures were scientists, but usually they had had little training in bacteriology and biochemistry. Because he tried to reach these people, Bracken's book is an excellent introduction to the subject. There are chapters on culturing micro-organisms in the laboratory, the place of bacteria and molds in nature, the commercially important antibiotics, and the synthesis by micro-organisms of pigments and of various organic compounds arbitrarily discussed (for ease of presentation) in a chapter on aromatic compounds and in one on aliphatic and heterocyclic compounds. The short bibliographies list chiefly British reference books and journals, but they are either common in libraries in the United States or their counterparts can be found easily. The typography and binding are good, and the index seems to be complete.

Clinical Pathology in General Practice. Specially commissioned articles from British Medical Journal, October, 1953, to July, 1954 (fully revised). Cloth. 21s. Pp. 321, with illustrations. British Medical Association, Tavistock Sq., London, W.C.1, England, 1955.

The organization of a national laboratory service in Great Britain made it advisable to provide the general practitioner with a short, simple, nonconfusing reference on clinical pathology to facilitate his contact with the pathologist. A series of short articles that had appeared in the *British Medical Journal* are here reprinted in book form. The authors, who for the most part are leading clinical pathologists of Great Britain, brought the material up to date. The introduction deals with the present organization of the laboratory service in England. The next section discusses technical procedures, mainly those used to obtain specimens for examination. This is followed by the discussion of various function tests, a fairly large chapter on microbiological procedures, a section on hematology—probably the best, a treatise on laboratory procedures in metabolic and endocrine diseases, and a discussion of skin and industrial diseases. The individual articles are authoritatively and well written, but, because of their brevity, much of the discussion is superficial as compared with books used in the United States. The development of the book also explains the uneven and sometimes sketchy coverage. Nevertheless, the pleasant and lucid way of presentation assists in fulfilling the primary mission of the book, to form a bridge between the thinking of the general practitioner and that of the clinical pathologist. For this purpose, it is probably as good as, if not better than, most similar books published in this country. For the second purpose, to guide in the interpretation of pathological reports, the American practitioner will wish a more thorough textbook.

Methods in Enzymology. Volume I. Edited by Sidney P. Colowick and Nathan O. Kaplan. Advisory Board: Britton Chance et al. Cloth. $18. Pp. 835, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

Medical scientists must be happy that this four volume treatise is being issued, because the work is the first in English on methods used in the study of enzymes. It will bring together a tremendous amount of information scattered through the periodical literature. Volume I is divided into sections on general methods for separating and purifying enzymes, special methods of preparing and analyzing the various enzymes of carbohydrate metabolism, of lipid metabolism, and of the citric acid cycle. Authoritative descriptions of the best procedures were obtained by asking experts to write about their specialties. The response to the requests must have been phenomenal, because there are 118 contributors to this first volume. Editing was kept to a minimum, but any disadvantages due to the lack of systematic nomenclature are overcome by the indexing of individual enzymes under all their common names. The author and subject indexes seem to be complete, and they are printed in type of a size that is easily read. The book is well printed and is sturdily bound.

Population Genetics. By Ching Chun Li, Ph.D. University of Chicago Committee on Publications in Biology and Medicine: Emmet B. Bay et al. Second edition. Cloth. $10. Pp. 366, with 82 illustrations. University of Chicago Press, 58th St. and Ellis Ave., Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, England; University of Toronto Press, Toronto 5, Ontario, Canada, 1955.

This volume is an extensive revision of the author's earlier "Introduction to Population Genetics," published in 1948 in Peking. Since coming to this country as a refugee from Marxist genetics, Professor Li, now at the Graduate School of Public Health, University of Pittsburgh, has had ample opportunity to exchange ideas with American and British workers in the field of human genetics. The fruits of these discussions are fully evident in the book. "Population Genetics" is an elementary textbook in what many persons consider a difficult area to understand. Dr. Li makes the subject as clear and as simple as possible. Although the treatment is necessarily mathematical, it is restricted to the level of college algebra and some elementary calculus. With that much background and a knowledge also of elementary Mendelian genetics, no student should have difficulty, since Professor Li has taken great pains to develop each exposition step by step. It is very helpful to have this approach rather than the all too common jumping from peak to peak, leaving the reader to follow if he can.

The subject treated comprises the range of methods applicable in population genetics and in no sense attempts to review the various contributions to the field. Genetic variance and correlation are introduced early and form the basis of further considerations. The first chapters are concerned with the genetics of a single locus in a population, then the complexities of independent and interacting loci are taken up. Systems of mating and inbreeding lead into an invaluable discussion of Sewall Wright's method of path coefficients. Other important topics that are adequately discussed are assortative mating; mutation, selection, and the joint effects of mutation and selection on gene frequencies, subdivision and migration; small populations and effective size; and stationary gene frequency distributions. The author is eclectic in his approach, using the contributions of Wright, Fisher, and Haldane as the basis of the superstructure built on the Hardy-Weinberg equilibrium principle, but he also makes use of many of the contributions to theory and method made by others in this field, including himself. The numerous examples and problems that follow each chapter are especially valuable. Whoever works through these should have a firm grasp of the methods discussed and should be aware of some of the pitfalls that await the foolhardy.

In short, this textbook not only provides a greatly needed elementary treatise for the student but also serves as an invaluable reference work for those who must grapple with human population genetics. Physicians who increasingly are coming to recognize the importance of hereditary factors, especially in the chronic diseases, should find here many useful methods for helping to determine the mode of inheritance of a particular con-

dition, the effects of mutation and selection on its frequency, and the complex interplay of dominance, penetrance, and gene interaction with other genes and with environmental factors that determines the incidence of a trait or predisposition. The books now available that are most comparable to this one are Hogben's "Introduction to Mathematical Genetics" and Dahlberg's "Mathematical Methods for Population Genetics." Li's book, however, is easier to follow than the former and is far more complete in its treatment than the latter. In format this volume is a fine example of the excellent work of the University of Chicago Press, but its high price puts it virtually beyond the purchasing power of the general student.

Ciba Foundation Colloquia on Endocrinology. Volume VIII: The Human Adrenal Cortex. Editors for Ciba Foundation: G. E. W. Wolstenholme, O.B.E., M.A., M.B., and Margaret P. Cameron, M.A., A.B.L.S. Assisted by Joan Etherington. Cloth. $10. Pp. 665, with 227 illustrations. Little, Brown and Company, 34 Beacon St., Boston 6; J. & A. Churchill Ltd., 104 Gloucester Pl., Portman Sq., London W.1, England, 1955.

This volume contains the proceedings of the Conference on the Human Adrenal Cortex held in London in 1954. The participants represented many countries. The book is divided into two parts. The first is concerned mainly with histological and biochemical aspects of the adrenals and corticomedullary relationships and the second with physiological and pathological aspects of the adrenals and hypothalamic and pituitary relationships. Though this volume is primarily concerned with the human adrenal cortex, many of the articles or chapters deal with useful supporting information obtained from animal experiments. Assembled here is the accumulated knowledge of current research on the adrenals in its many ramifications. Though many of the conclusions are incomplete and the results of studies by various workers are contradictory, the lively discussions and arguments among the participants, which are found at the end of each chapter, add much to a better understanding of the complex problems being weighed. A great deal of information not readily available has been brought together under one cover. The book is easily read, is well illustrated, and contains a mine of information. It should prove a useful reference book to workers interested in adrenal physiology and pathology. The clinician should find it useful as background for his clinical studies. The possible areas of usefulness of adrenalectomy and hypophysectomy for the control of certain hormone-dependent neoplasms in man are explored. The chapters on virilizing adrenal hyperplasia and adrenal cortical hyperfunction (Cushing's syndrome) are quite complete.

Modern Health. By James H. Otto, Cloyd J. Julian, and J. Edward Tether, M.D. Cloth. Pp. 566, with illustrations. Henry Holt and Company, Inc., 383 Madison Ave., New York 17, 1955.

Intended for use by high school students, this volume shows evidence of careful preparation to insure attractiveness and ease of use. It is filled with illustrations, many in color. At the end of each chapter, there are a summary, a series of questions for discussion, an exercise in fitting words to definitions, and a true-or-false exercise. All of these devices should be useful to both teachers and pupils at this educational level. At the end are a glossary and three appendixes, including a table of infectious diseases, a list of items for a home first-aid kit, and a listing of National Health Council members. There is also an adequate index. The seven units are presented in a personalized manner, with emphasis on "you." They begin with considerations of personality and personality problems, go on to special senses and the nervous system, and then cover bones and muscles, food and oxygen supplies, protection against disease, and first aid and safety. This volume is intended for use at any level of the high school curriculum. The unit arrangement is such that each can be studied separately, as, for example, in conjunction with work in other courses. Special attention has been paid to keeping the language understandable, and when technical terms are used they are set in boldface, with phonetic spelling. The large number of illustrations adds to the attractiveness of the book, and charts and diagrams are used extensively for graphic demonstration of basic facts. The double column format facilitates reading. The volume should find a definite place in any high school health education program.

The Psychoanalytic Study of the Child. Volume IX. Managing editors: Ruth S. Eissler, M.D., Anna Freud, LL.D., Heinz Hartmann, M.D., and Ernst Kris, Ph.D. Editorial board, United States: Ruth S. Eissler, M.D., et al; Great Britain: Anna Freud, LL.D., Willie Hoffer, M.D., Ph.D., L.R.C.P., and Edward Glover, M.D. Editorial assistant: Lottie M. Maury. Cloth. $7.50. Pp. 369. International Universities Press, Inc., 227 W. 13th St., New York 11, 1954.

Like its predecessors, this volume presents a collection of clinical and theoretical papers on the application of psychoanalytic concepts to the study of early years of life. The first section consists of an abstract of Anna Freud's public lecture in New York (the 1954 Freud Memorial Lecture) on psychoanalysis and education and a transcript of a day-long discussion, conducted with Miss Freud's participation, on problems of infantile neurosis. The editors have rendered a valuable service in publishing this material, as both the lecture and the discussion contain ideas that will probably have a lasting impact on psychoanalytic thinking. The abstract of Miss Freud's lecture unfortunately can convey little of the charm and lucidity of her talk, which presented a fresh approach to the role of parents in the development of childhood neurosis. The papers in the second section range from brief presentations of clinical experiences in the treatment of childhood emotional problems to complex theoretical formulations. The last section contains three papers on the technique of child analysis. While the contributions necessarily vary in quality, the general standard is very good. Since, with few exceptions, the papers are written in the technical language of psychoanalysis, the chief appeal of this volume will be to the various disciplines in which psychoanalytic concepts are current.

Healthful Living. By Harold S. Diehl, M.A., M.D., Sc.D., Professor of Preventive Medicine and Public Health, and Dean of Medical Sciences, University of Minnesota, Minneapolis. With foreword by Morris Fishbein, M.D. Fourth edition. Cloth. $6. Pp. 529, with 53 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

In this new edition, the shift to the concept that health is found where a person can learn about disease and its prevention is given new emphasis. As in earlier editions, Diehl has carried out a creditable presentation of current facts and attitudes in the many aspects of health with which the average lay reader is concerned, and the present approach has been broadened even more. Included are discussions that would have been considered far too technical in earlier days, such as those dealing with the Rh factor, hormones, antibiotics, and the possible relationship of smoking to cancer. A special glossary of medical terms is a valuable part of this orientation process. The philosophy of the volume is established in the first chapter, which deals with possibilities of longer life and better health. Chapter 2 summarizes major health problems, and the third chapter is devoted to mental health. Succeeding chapters consider various aspects of food and nutrition, exercise, the special senses, care of the skin, disease prevention, narcotics, internal secretions, and sex life and parenthood. The changing age pattern of the population is reviewed in a special chapter, and the final chapter provides guidance on selection of a family physician. At the end there are tables of standard weights, food values of common portions, a personal health record, and the glossary mentioned. The book is adequately if not profusely illustrated, and large type on highly calendared paper makes it easily readable. The extensive index should be of value to any reader. This volume can be recommended to the lay public as a means of improving knowledge and understanding regarding today's health problems. The development of radioactive elements and disaster measures are not considered. This may be a sensible departure. Seven special films are available through the publishers for use in connection with various chapters. These are on emotional health; bacteria; body care and grooming; the nose, throat, and ear; reproduction; hormones; and heart and circulatory disorders.

Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten. Von Doz. Dr. med. Wilhelm Oelssner, kommissarischer Direktor des Röntgeninstitutes der Karl-Marx-Universität Leipzig. Cloth. 21.40 marks. Pp. 164, with 115 illustrations. VEB Georg Thieme, Hainstrasse 17-19 Aufg. C, (10 b) Leipzig Cl (Russian zone) Germany, 1955.

Roentgen examination of the chest has become of extraordinary significance in clinical medicine. In clarifying individual cases, as in serial examinations, it frequently is the decisive diagnostic measure. It is used mainly for primary thoracically localized conditions when pulmonary tuberculosis is suspected or must be excluded. It is rarely used in patients with mammary carcinoma in spite of the fact that repeated roentgen examination of the thoracic cage is invaluable in its treatment and guidance. No previous book has stressed the indications, findings, and results of repeated roentgenographic examination during the treatment of mammary carcinoma, and individual articles touching on these are scattered. Even textbooks on surgery and roentgen diagnosis mention this subject briefly, if at all. No region of the body is more frequently examined with the roentgen ray than the thorax, and, since mammary carcinoma is second in frequency among the malignant tumors of women, this becomes important to internists and chest physicians, who most frequently make such examinations. Every physician should be conversant with the findings of mammary carcinoma, even though he is not concerned directly with this condition. The author's studies cover a period from 1947 to 1952, including more than 1,600 patients with mammary carcinoma. He lists as significant: (1) intrathoracic metastases, (2) severe associated conditions in the breasts that can influence the prognosis and the value of the treatment used, (3) changes resulting from therapeutic measures, and (4) the fact that a lesion is stable. A series of comparative roentgenograms is presented for simplifying differential diagnosis of subsequently appearing symptoms. The book presents the subject clearly for the physician who can read German and offers valuable data on a commonly neglected subject.

Research and Education in Rheumatic Diseases: Transactions of First National Conference at National Institutes of Health, Bethesda, Maryland, November 19, 1953. Edited by Joseph J. Bunim, M.D., Clinical Director, National Institute of Arthritis and Metabolic Diseases. Sponsored by American Rheumatism Association, Arthritis and Rheumatism Foundation, and National Institute of Arthritis and Metabolic Diseases. Published in cooperation with National Institute of Arthritis and Metabolic Diseases, Public Health Service, United States Department of Health, Education and Welfare. Cloth. Pp. 141, with illustrations. Arthritis and Rheumatism Foundation, New York, 1954.

This small volume presents a compilation of papers delivered at the First National Conference of Research and Education in Rheumatic Diseases by the leading investigators and clinicians in this field. The book is divided into four parts. Part 1 deals with the promising areas for exploration and research; part 2 with research and training in rheumatic diseases in the United States; part 3 with medical education in rheumatic diseases; and part 4 with a general discussion of problems relating to rheumatic diseases. The style varies with the individual authors, but every paper is well written. The papers have excellent illustrations, plates, graphs, and bibliographies. The volume contains an authoritative presentation of the basic and clinical research that is currently carried on by prominent investigators. It should prove valuable to all those in the field of rheumatic diseases and stimulating to those contemplating work in this field.

Atlas de chirurgie thyroidienne. Par Jacques Francillon, chirurgien des hôpitaux de Lyon, et Claude Gabrielle, interne des hôpitaux de Lyon, Lyons, France. Préface de Léon Bérard. Cloth. 3000 francs. Pp. 182, with 134 illustrations par Dr. C. Millet. Expansion scientifique française, 15, Rue Saint-Benoit, Paris 6e, France, 1955.

As stated in the preface, the medical treatment and surgical technique of the diseases of the thyroid are well established. The authors call special attention to the care of the pedicles of the thyroid, the recurrent nerve, and the parathyroids. After evaluation of different incisions and surgical techniques practiced in Europe as well as in the United States, the authors' method of ligation of pedicles and vessels in total and partial thyroidectomy is described and the advantages stressed. Different surgical steps are well illustrated by diagrammatic and anatomic drawings. These are accompanied by short and concise texts. Print and illustrations are excellent. On the whole, the book can be recommended for surgical residents and young surgeons. The experienced surgeons may also pick something of value here and there from the text.

Bone and Joint X-Ray Diagnosis. By Max Ritvo, M.D., Assistant Clinical Professor of Radiology, Harvard Medical School, Boston. Cloth. $20. Pp. 752, with 568 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

The high regard in which Max Ritvo is held by his colleagues in radiology and his friends and acquaintances in surgery, orthopedics, and other medical and surgical specialties is evidenced by the fact that he is on the medical faculties of three medical schools located in Boston, is director of the department of radiology and roentgenologist of the Boston City Hospital, and is associate radiologist of the Beth Israel Hospital. He is a radiologist and scientist who possesses the ability, denied so many fine clinicians, to write exceptionally well. Each sentence is clear and concise. Diction is excellent. The explanations are adequate without being verbose. Most of the illustrations are exceptionally well reproduced. The printing is clear and easy to read. This is a reference book rather than a textbook. The first chapter, headed General Considerations, introduces the roentgenologic techniques of bone and joint diagnosis to the medical student or physician who has not had special training in roentgenology. The other chapters have headings similar to those that would be found in the average orthopedic textbook. In this manner, the various lesions of the bones and joints are taken up in an orderly classification. Hereditary, congenital, and developmental disturbances of the skeleton are grouped together in chapter 2; traumatic lesions in chapter 3; infections in chapter 4; glandular, nutritional, and metabolic disturbances in chapter 5; diseases of the joints and the periarticular tissues in chapter 7; bone tumors in chapter 8; and disease of the spinal canal in chapter 9. A splendid addition to this book is chapter 10, which deals with soft tissue roentgenography. The bibliography is adequate and well selected. As the author states in the preface, the emphasis throughout this book is on the description and evaluation of the roentgenographic manifestations of the diseases and anomalies of the bones and joints. The book is intended primarily for the roentgenologist and for those in training in the field of radiology, but it should be of great value to the orthopedist, the general surgeon who does some bone and joint surgery, and to all who have a real interest in the study of the bones and joints.

Kreislaufregulation: Eine physiologische, pathophysiologische und klinische Studie. Von H. Reindell, E. Schildge, H. Klepzig und H. W. Kirchhoff. Mit einem Vorwort von Prof. Dr. Ludwig Heilmeyer. Cloth. 39.60 marks; $9.40. Pp. 315, with 163 illustrations. Georg Thieme, Herdweg 63, (14a) Stuttgart, Germany (agents in U. S. A. and Canada, Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16), 1955.

This book summarizes present knowledge of the neural and humoral mechanisms that determine heart rate, blood pressure, stroke volume, and other important variables in the cardiovascular system. A 54-page section describes the various forms of circulatory disturbance involving the vegetative nervous system, especially several forms of collapse. This is followed by a discussion of pain referred to the heart and of anxiety as either a cause or a result of cardiac disease. Case histories are given, and there is an abundance of electrocardiograms. The concluding pages give suggestions for therapy, including tables of drugs and doses. Unfortunately, both generic and brand names are capitalized, so that the one cannot be told from the other, and the doses are given in such terms as tablets and drops. These pages also take for granted that the reader has assimilated all of the preceding pages. This he is not likely to have done, inasmuch as the text lapses occasionally into platitude and at one point goes on for more than two pages without paragraphing. This book should be of interest to cardiologists and physiologists.

QUERIES AND MINOR NOTES

DIATHERMY

To the Editor:—*What is the effect on the skin and other tissues of diathermy treatments used in recommended dosage for various conditions such as rheumatism and back "strain"? Is the effect of diathermy cumulative? How often may it be used without harm?* *M.D., Georgia.*

Answer.—The action of medical electronic diathermy is to bring about the heating of tissues for therapeutic purposes. The local effects of diathermy on the skin and other tissues are those that result from localized heating of tissues. These effects include rises in tissue temperatures and vasodilatation in the area, which result not only in an increase in the caliber of the blood vessels but also in an increase in the number of patent vessels. Thus additional channels are opened in the region with a resulting increase in blood flow through the area. Sweating of the skin is perceived. With the localized heating there is also an increase in metabolic activity of the area. If proper dosages are used, the effects of heat are not cumulative, and therefore the effects of diathermy are not cumulative. Diathermy may be applied as frequently as one would apply heat from any other source provided of course that excessive dosages were not used with each application. It must be realized that in the treatment of rheumatism and back "strain" diathermy provides only heat, which in many instances can be considered to constitute only part of the treatment of these conditions.

FLATFOOT IN CHILDREN

To the Editor:—*What should be done for a 21-month-old child who is markedly "pigeon toed." The child is able to walk well but frequently stumbles and falls. There are no other visible abnormalities.* *M.D., New York.*

Answer.—The first thing that must be ruled out is a talipes adductus, which is a true congenital anomaly. The foot is in the adducted position and resists manual correction. Such a foot must be corrected in a manner similar to the treatment for the congenital clubfoot (talipes equino varus). Occasionally the foot turns in due to a deformity of the metatarsal bones (so-called metatarsus varus). This gives rise to a pes adductus deformity and is a congenital anomaly that requires gradual correction by means of casts or surgery. Most intoeing, however, is on a physiological basis. It is an instinctive attempt of a child to correct flatfoot. Correction of flatfoot will obviate the "pigeon-toed" walking. Correction of flatfoot in children is discussed in "Diseases of the Foot," by Emil D. W. Hauser (Philadelphia, W. B. Saunders Company, 1939).

SLIDING HERNIA

To the Editor:—*What may be the cause of a sliding hernia? What are the impressive diagnostic procedures that may reveal the presence of a sliding hernia in the absence of mechanical ileus? What operative procedure offers the most promising results in repair of sliding hernia?*

J. V. Waitkunas, M.D., Woodhull, Ill.

Answer.—The usual hernia is contained in a sac of parietal peritoneum protruding through a defect in the abdominal wall. In a sliding hernia, a partially retroperitoneal viscus slides through the defect to form part of the wall of the sac. A common variety occurs when the parietal attachment of the cecum or sigmoid is drawn into the sac by traction on the parietal peritoneum by the increasing size of an indirect hernia. Another type results from an extraperitoneal organ being pushed through a defect in the abdominal wall just peripheral to it. This type of hernia may be extrasaccular. The usual site is the bladder thrust through Hesselbach's triangle and the external inguinal ring. The surgical import of sliding hernia lies in recognition of the condition before the viscus or its blood supply is injured during herniorrhaphy. The sliding viscus is reduced, and the neck of the sac, if any, is closed prior to its amputation. The defect in the abdominal wall is repaired. There are no diagnostic signs peculiar to sliding hernia. Successful herniorrhaphy depends on astute appraisal of the anatomic and structural situation disclosed at operation and repair of the defect as dictated by the individual circumstances.

POSSIBLE CEREBRAL THROMBOSIS

To the Editor:—*A man, aged 81, previously in good health except for moderate hypertension and a tendency to belch gas after eating, suddenly had a severe right-sided headache not accompanied by vomiting or dizziness. He had an irregular temperature ranging from 98 to 101 F, and there was numbness of the hands and feet. Articulation, memory, and judgment were poor. On admission to the hospital, the patient's red blood cell count was 5,130,000 per cubic millimeter, white blood cell count 5,700 per cubic millimeter, hemoglobin level 16 gm. per 100 cc., and sedimentation rate 56 mm. the first hour. The urine and electrocardiogram were normal. Blood nonprotein nitrogen was 43.5 mg. per 100 cc. A spinal tap was done, after which the headache was suddenly relieved. Cloudy fluid dropped from a no. 20 needle at the rate of 120 drops per minute, the white blood cell count was 1,588 per cubic millimeter, and there were no red blood cells. Polymorphonuclear leukocytes were 90%, and lymphocytes were 10%. Culture was negative. Protein level was 270 mg. per 100 cc. Globulin negative sugar was 14 mg. per 100 cc., and the colloidal gold curve was 5541000000. Blood and spinal fluid Kahn tests were negative. After six days the spinal fluid white blood cell count was 570 per cubic millimeter, with the same proportion of polymorphonuclear leukocytes and lymphocytes as formerly. The numbness had disappeared. His ability to pronounce words was better. The fever persisted. The blood pressure, while the patient was in the hospital, remained between 180 and 160 mm. Hg systolic and 90 and 100 mm. Hg diastolic. If further procedures can be suggested to arrive at a diagnosis I would be glad to have them.*

Louis LeFevre, M.D., Muskegon, Mich.

Answer.—It would appear from the information supplied that this man experienced cerebral thrombosis, but its exact location cannot be stated. In favor of the vascular nature of the lesion are his arterial hypertension, the abruptness of onset, the absence of evidence of materially increased intracranial pressure, and the rather prompt improvement, apparently, without the use of antibiotics or other chemotherapy. The findings on examination of the cerebrospinal fluid are consistent with an infarction that involves either the ependyma or the pia, since a predominantly polymorphonuclear pleocytosis is seen in such cases, together with the increase in protein. The 14 mg. per 100 cc. of sugar in the cerebrospinal fluid strongly suggests bacterial infection, but since the culture of the cerebrospinal fluid was negative, presumably without antibiotics having been given, meningitis would seem to be most unlikely. It would help to know whether the sugar level in the cerebrospinal fluid was low in both specimens. In any case, a third puncture should be done, the pressure accurately measured, the sugar content determined, and the fluid cultured. Of course, neurological reexamination must be frequently carried out. In view of the patient's improvement, it would appear safe to continue the

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

V 1
195

present management pending new information or developments, but the addition of suitable antibiotic therapy could do little harm.

LOSS OF TESTIS

To the Editor:—*A 65-year-old man suffered a traumatic injury of his left scrotum requiring removal of the left testis about a year and a half ago. Following the operation, the right testis became atrophic. Three days postoperatively he began to develop hot flashes and sweats. At that time he was assured that these would be temporary and of short duration and was started on male hormone therapy. Since that time he has continued to have hot flashes and sweats day in and day out occurring about one-half to an hour apart, many times awaking him at night because his pajamas become drenched with perspiration. Even on the coldest winter days the sweat will stand out on his nose and forehead. He has been given long courses of male hormone by injection and by mouth. In addition he has received thyroid and vitamin B complex and has had a long course of probanthine. In all other respects, he is in completely good health and has no other complaints. There are no other unusual physical findings except as related to his absent left testis and atrophic right testis. What would you recommend in this case?*

William S. Keenan, M.D., Rockford, Ill.

Answer.—In the case of a 65-year-old white male who suffered the loss of function of his left testis a year and a half ago due to a traumatic lesion, surgery apparently was applied for removal of the remnants of the left testis and cord, because it is stated that, following the operation, the right testis became atrophic. This would imply that the right testis has also been injured, or the blood supply interfered with, and that atrophy of the testis resulted thereafter. The postoperative development of hot flashes and sweats suggests that perhaps the right testis may have been atrophic prior to the removal of the injured left testis, because this is a very short period of time for endocrine deficiency imbalance from a vasomotor point of view to appear. It was very foolish to assure this patient that these flashes and sweats would be temporary, because one is never sure after castration as to the exact vasomotor and emotional factors that will result. Since the patient has not improved with administration of male hormone and has received vitamin B and probanthine—the reasons for the latter not being clear to me—this suggested that, in addition to a maintenance dose of male hormone, the patient also be given estrogens, which may very rapidly control the hot flashes and sweats. Since one never knows the percentage of estrogen and androgen that is the result of testicular and adrenal function, it is always well to replace (unless one is treating cancer of the prostate) the deficiency of female hormone as well as male hormone. In this case it is suggested first of all to correct the idea that one is sure that these flashes can be controlled, and, secondly, give the patient female hormone in various quantities, starting, for instance, with 1 mg. of stilbestrol or its equivalent every day, then every other day, and then, perhaps, once or twice weekly.

REMOVAL OF PROSTATE

To the Editor:—*A 53-year-old man, having some urinary disturbance, consulted two urologists, each in a different city. He was told he had an adenoma of the prostate. One advised a suprapubic removal; the other a transurethral resection. The patient is in a quandry as to which type of removal would be best for him. He is in good physical condition except for a chronic bronchitis and tachycardia, both of which are probably from the use of tobacco. Is there more chance of recurrence when doing a transurethral resection?* *M.D., Ohio.*

Answer.—It would be impossible to give an intelligent reply to this query as to which type of operation would be best suited to his individual case. It would depend a great deal on the exact size of the gland, all of the other considerations involved, how much tissue should be removed, what the condition of the upper urinary tract is, what the domestic and sexual outlook of the patient is, and who is going to perform the procedure—will he be an expert prostatectomist through open surgery or one who has had a great deal of experience and possesses the skill to do a proper transurethral resection. These are all criteria that would influence such a decision. There is the chance of recurrence after a transurethral resection, especially in a patient 53 years of age who may continue to live for 20 or 25 years beyond the time of the procedure, but there is also always a remote chance of recurrence following enucleation. The chance of recurrence in the hands of a good operator is not believed to be of major consideration.

FLEXION OF KNEES IN HOSPITAL PATIENTS

To the Editor:—*It is the custom of the hospital I am associated with to place the knee gatch up so that the knees are kept flexed in bed. I have been taught that this promotes venous stasis and thrombosis. Inasmuch as the above is standard procedure at my hospital and taught to the nurses I would like to change it but need the support from other places.*

M.D., New York.

Answer.—Twenty-five to 30 degrees of knee flexion relaxes the pull of the hamstring muscles, and, if the patient is properly positioned, should not cause any compression or constriction of the extremity, producing venous stasis or thrombosis. The so-called Williams' position for treatment of patients with acute lumbosacral pain includes this knee flexion. There is no report that would indicate that the thousands of patients so treated every day develop any more phlebothrombosis, or have any more venous stasis, than do patients whose legs are kept straight. In either event, it is advisable to urge and require movements of the legs at frequent intervals. The use of Ace bandages in the older patients or for any patient who has evidence of poor venous circulation is certainly advisable.

TO HASTEN EPITHELIZATION OF BURNED AREA

To the Editor:—*In 1953 a 70-year-old man was burning brush, his clothes became ignited, and he suffered first, second, and third degree burns of hands, arms, legs and genitals. He refused hospitalization and skin grafting. I treated him with Vaseline pressure dressings to extremities until July, 1954. By this time the upper extremities and genitals were healed. On the right leg just below knee there is a band of granulation tissue 5 in. wide extending around the leg onto the calf. On the left leg there are only two areas of granulation tissue the size of a quarter and a dime. To these areas one member of the family applies twice daily a 2% solution of gentian violet with cresol, 0.35%. While the best we can hope for is scar tissue, I would like to know how to hurry this process along.*

M.D., Massachusetts.

Answer.—To hasten the process of epithelization of the granulating area referred to, it is suggested that silver nitrate on a stick (cautery) be applied once a week (silver nitrate, 75%, potassium nitrate, 25%) to the granulating surface. This procedure should cut down the overgrowth of granulating tissue and permit the epithelial cells to grow over the part.

COMPLICATION FOLLOWING EYE INJURY

To the Editor:—*A patient with an intraocular foreign body developed supraorbital neuralgia as a complication about seven days after the removal of a piece of steel. This was the first time I had seen this complication in any eye case. 1. Is this complication rare in any eye case? 2. How often does it occur in eye cases generally and in intraocular cases specifically?* *W. G. Hayden, M.D., Toms River, N. J.*

Answer.—Following serious injury to the eye, such as contusion, abrasion of the cornea, penetration of the globe by a foreign body, and surgical procedures, complications due to the injury frequently appear in a few days or months or even years. Among the most serious complications are pain in and about the injured eye, due to inflammation of the uveal tract, and secondary glaucoma. Uveitis following removal of intraocular foreign bodies is likely to be the rule rather than the

exception and frequently exists in a low grade that escapes detection. Evidences may be detectable only by close examination of the anterior segment of the eye with the biomicroscope. The state of the pupil is not a dependable indication of the presence of uveitis, as it may be well dilated and fixed as a result of the entrance of the foreign body, the operation for removal, or the instillation of a mydriatic. The severity of the uveitis is sometimes much greater than the appearance of the eye would indicate, and supraorbital neuralgia is not uncommon as the dominant symptom. A sequel to uveitis in traumatized eyes is secondary glaucoma. In these cases either the pupil has become blocked (iris bombé) or the spaces in the filtration angle have been sufficiently closed to cause a rise in tension. Supraorbital pain in such a case may be the result of the glaucoma, but, in the presence of mixed conditions of the eye, in which either one could cause the pain, there is little reason to try to differentiate. The action of drugs is not normally specific in such cases. Atropine for the uveitis is indicated but may be contraindicated by the secondary glaucoma. Likewise, miotics may be useless or even harmful. In the absence of infection, antibiotics are not indicated, and cortone compounds have no predictable effect. The neuralgia may be severe and persistent, justifying the use of sedatives in doses required in critical pain. Probably the best aid in differential diagnosis and in treatment is artificial fever produced by intramuscular injection of 5 to 10 cc. of boiled milk or by typhoid vaccine to produce a rise in temperature to 101 to 103 F within three or four hours and repeated every other day until symptoms of uveitis disappear. Statistics are not available on the frequency of supraorbital neuralgia following removal of foreign bodies from the eye, but it may be expected in any case and undoubtedly occurs more often than records show, although it may not always be attributed to the injury.

TELANGIECTASIA IN A CHILD

To the Editor:—*I recently saw a 5 year 9 month old child with telangiectasia that apparently began when the child was about 3 years of age, appearing on the face and lower arms. These lesions have become more numerous, spreading to the lips, across the shoulders onto the lower extremities, and to a lesser extent on the body. The lesions are mainly spider-like and blanch on pressure. There are hundreds of small areas of skin atrophy, especially on the arms around some of these lesions. There is no family history of such a disorder. Physical examination of the child is otherwise essentially normal. Laboratory studies including complete blood cell counts are perfectly normal. Is there any treatment that would benefit this child's condition?*

M.D., Tennessee.

Answer.—Multiple spider-like telangiectasia is not apt to occur in a child of this age. The combination of telangiectasia and atrophy is typical of xeroderma pigmentosum in a child whose skin does not pigment readily. The parents are often blood relatives, and the child shows abnormally strong reaction to exposure to ultraviolet rays. The erythema is prolonged and is followed by atrophy, telangiectasia, and hyperpigmented (post-inflammatory melanosis) macules. Keratosis develops in which cutaneous carcinoma and, rarely, melanoma appear. The only satisfactory treatment is protection from ultraviolet irradiation.

TUBERCULOSIS IN WATER BUFFALO

To the Editor:—*Since coming to India, I have heard it said by many that water buffalo do not contract tuberculosis whereas cows do. Therefore buffalo milk is considered safe. None of the cows are tuberculin tested. Is it true that water buffalo do not contract tuberculosis? Also, what is considered a safe time to boil milk to make it safe to drink?*

Albert C. Holt, M.D., Bombay State, India.

Answer.—Water buffalo are not resistant to tuberculosis. Of 500 inspected in abattoirs in India in 1944, 25 showed infection and Mycobacterium tuberculosis was recovered from lesions in 13 animals. To destroy such pathogenic bacteria in milk it need not be boiled. It may be heated to 142 F to 145 F for 30 minutes or 160 F for 15 seconds.

CONDYLOMA ACUMINATUM

To the Editor:—*I would like information on the source of infection of condyloma acuminatum of the female genitals. Are such viruses transmitted through sexual contact only? In persistent urinary meatal condyloma, is there any better treatment than the use of Podophyllin or fulguration?*

Herman V. Platt, M.D., Santa Monica, Calif.

Answer.—For information on the source of infection, there is an article on condyloma acuminatum by Raymond C. V. Robinson in the *American Journal of Syphilis, Gonorrhea and Venereal Diseases* (**38:**609, 1954). There is no better treatment than Podophyllin or fulguration.

SUDDEN CARDIAC ARREST

To the Editor:—*With reference to the section Queries and Minor Notes, "Sudden Cardiac Arrest" in* The Journal, *July 2, page 800, a third mechanism, inefficient contractions of the respiratory muscles, might well be added to the two mechanisms listed for producing sudden cardiac arrest following electric shock treatment, namely, heart strain and neurogenic disturbances of the medullary cardiac centers. The inefficient contractions occurring during the convulsions produce hypoventilatory complications, the most serious of which leads to hypoxemia. This situation is further impaired with the simultaneously increased oxygen utilization by the convulsing musculature, and the resulting hypoxemia, alone or with other mechanisms, can also produce cardiac arrest. R. J. M. Steven and others (Anesthesia for Electroconvulsive Therapy,* Anesthesiology **15:***623-636 [Nov.] 1954) report a technique designed to reduce hypoxemia even when muscle relaxants are used to diminish the violence of the electroconvulsions. However, regardless of the technique used, recognition of this third mechanism will prompt the frequent prophylactic use of oxygen and assisted or artificial respiration in order to prevent cardiac arrest.*

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San Francisco.

To the Editor:—*In Queries and Minor Notes* (J. A. M. A. **158:***800 [July 2] 1955) in response to a question concerning treatment of cardiac arrest following electric shock treatment, certain ill-advised recommendations were made, such as: "The ideal way of dealing with cardiac arrest is the use of a cardiac pacemaker." It is further stated that if such an apparatus is not available, strong mechanical stimulation on the chest and various intravenous and intracardiac injections should be tried. Strong objection should be raised to this ineffectual approach. Cardiac arrest following electric shock should be reversible in a great majority of the cases—but requires immediate direct treatment. The oxygen system must be restored without delay (Beck, C. S., and Rand, H. J., III: Cardiac Arrest During Anesthesia and Surgery,* J. A. M. A. **141:***1230 [Dec. 24] 1949; Brofman, B. L., and Perez-Alvarez, J. J.: Successful Treatment of Cardiac Arrest,* A. M. A. Arch. Surg. **69:***12 [July, pt. 1] 1954). Oxygen must be delivered to the lungs by positive inflation via an intratracheal tube; circulation must be restored by effective massage of the heart. This can be accomplished only by opening the chest and exposing the heart. If ventricular fibrillation is present defibrillation must be performed before a coordinated heartbeat can be restored. No time can be wasted on such procedures as hooking the patient to an electrocardiograph, repeated auscultation or blood pressure recordings, or striking the chest wall. An electronic cardiac pacemaker has no immediate application in this situation. Its primary use is in Stokes-Adams attacks associated with complete heart block. The time wasted in the useless functions suggested in response to this query would probably preclude successful resuscitation without residual damage to vital organs.*

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195